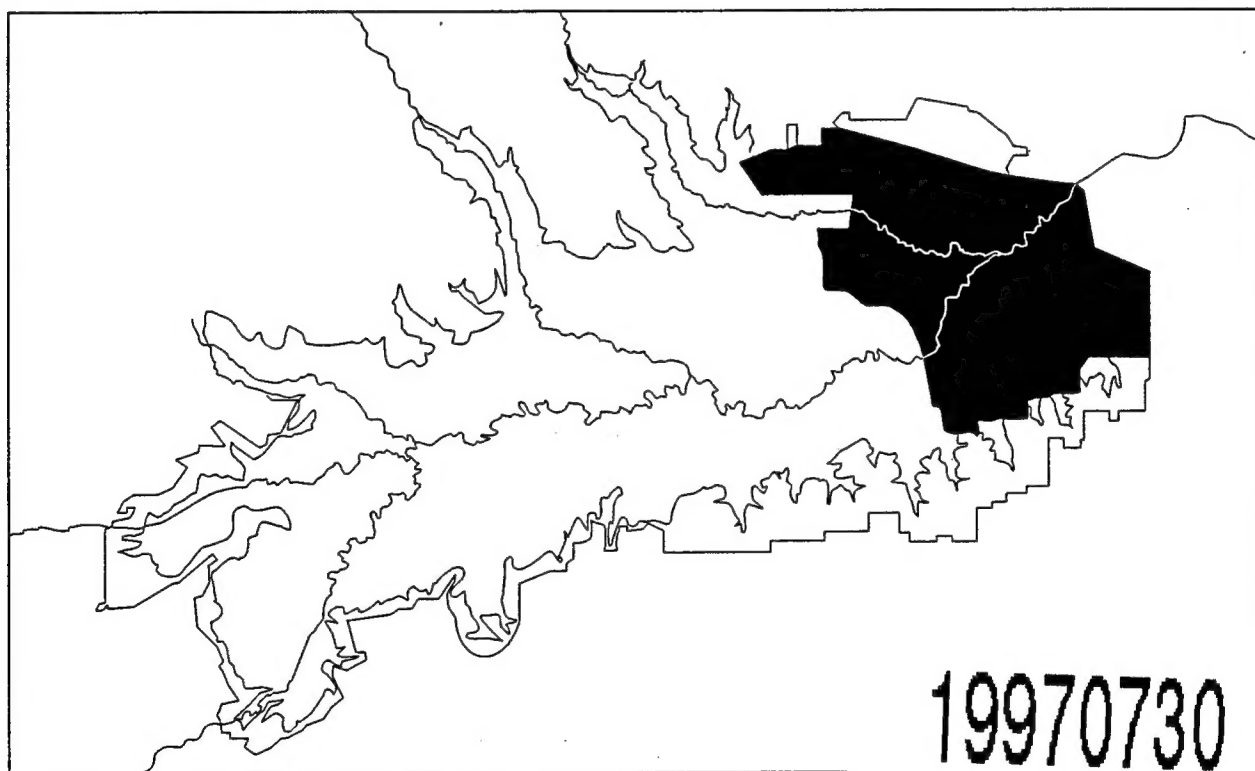


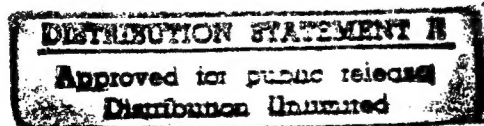
Archaeological Investigations at Cooper Lake, Delivery Order Numbers 2, 3, & 4, 1987 Volume 1: Chapters 1-10

Cultural Resource Studies for Cooper Lake, Hopkins and Delta Counties, Texas

**Daniel E. McGregor, Melissa M. Green, David H. Journey, William A. Martin,
Randall W. Moir, and Joe W. Saunders**



19970730 063



DTIC QUALITY INSPECTED 2



**Archaeology Research Program
Department of Anthropology
Southern Methodist University
Dallas, Texas 75275**

**U.S. Army Corps of Engineers
Fort Worth District
Contract Number DACW63-87-D-0017
Delivery Order Numbers 2, 3, & 4**

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1a. REPORT SECURITY CLASSIFICATION Unclassified			1b. RESTRICTIVE MARKINGS		
2a. SECURITY CLASSIFICATION AUTHORITY			3. DISTRIBUTION / AVAILABILITY OF REPORT		
2b. DECLASSIFICATION / DOWNGRADING SCHEDULE					
4. PERFORMING ORGANIZATION REPORT NUMBER(S)			5. MONITORING ORGANIZATION REPORT NUMBER(S)		
6a. NAME OF PERFORMING ORGANIZATION Archaeology Research Program Southern Methodist University		6b. OFFICE SYMBOL (If applicable)	7a. NAME OF MONITORING ORGANIZATION U.S. Army Corps of Engineers Fort Worth District		
6c. ADDRESS (City, State, and ZIP Code) Department of Anthropology 3225 Daniel Avenue Dallas, TX 75275			7b. ADDRESS (City, State, and ZIP Code) P.O. Box 17300 Fort Worth, TX 76102		
8a. NAME OF FUNDING / SPONSORING ORGANIZATION Same as 7a		8b. OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER Contract Number DACW63-87-D-0017 Delivery Order Numbers 2, 3, & 4		
8c. ADDRESS (City, State, and ZIP Code) Same as 7b			10. SOURCE OF FUNDING NUMBERS		
			PROGRAM ELEMENT NO.	PROJECT NO.	TASK NO.
			WORK UNIT ACCESSION NO.		
11. TITLE (Include Security Classification) Archaeological Investigations at Cooper Lake, Delivery Order Numbers 2, 3, & 4, 1987					
12. PERSONAL AUTHOR(S) Daniel E. McGregor, Melissa M. Green, David H. Journey, William A. Martin, Randall W. Moir, and Joe W. Saunders					
13a. TYPE OF REPORT Final		13b. TIME COVERED FROM 2/87 TO 9/96		14. DATE OF REPORT (Year, Month, Day) September 1996	
15. PAGE COUNT 741					
16. SUPPLEMENTARY NOTATION					
17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)		
FIELD	GROUP	SUB-GROUP			
05	06		Cooper Lake, Archaeology, Cultural Resources		
19. ABSTRACT (Continue on reverse if necessary and identify by block number)					
<p>Cooper Lake, located at and below the confluence of the principal upper drainage tributaries of the South Sulphur River contains cultural resources relating to the full spectrum of human use of this region of northeast Texas. Archaeological investigations have been performed in this area for the last 35 years. This report presents the results of a multidisciplinary investigation of a 4700 acre embankment and borrow pit area at Cooper Lake. Geophysical and geomorphological studies were undertaken to understand buried and relief features of the landscape, and the potential human use or occupation of these geomorphic features. Ethnohistorical interviews and archival and historical researches were performed to completely document the written information relating to previously occupied properties of the project area. Archaeological studies include archaeobotanical, zooarchaeological, osteological, malacological, and radiocarbon analyses; studies of lithic, ceramic, and other tool technologies; intra- and intersite spatial analyses; and, where possible, reconstruction of site and study area chronology, subsistence, and seasonality and duration of occupation.</p>					
20. DISTRIBUTION / AVAILABILITY OF ABSTRACT <input type="checkbox"/> UNCLASSIFIED/UNLIMITED <input type="checkbox"/> SAME AS RPT. <input type="checkbox"/> DTIC USERS			21. ABSTRACT SECURITY CLASSIFICATION Unclassified		
22a. NAME OF RESPONSIBLE INDIVIDUAL Jay Newman			22b. TELEPHONE (Include Area Code) (817) 978-6388		22c. OFFICE SYMBOL CESW-PL-RC

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Archaeological Investigations at Cooper Lake, Delivery Order Numbers 2, 3, & 4, 1987

Volume 1: Chapters 1-10

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with contributions by

Cathy J. Crane, Timothy K. Perttula, Frank Winchell, and Bonnie C. Yates

and Appendices by

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and Malcolm K. Cleaveland**

Edited by

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1996

**Archaeology Research Program
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Fort Worth District
Contract Number DACW63-87-D-0017
Delivery Order Numbers 2, 3, & 4**

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Southwest Division
Fort Worth District
819 Taylor Street, Room 13A14
Fort Worth, Texas 76102-0300

Contract: DACW63-87-D-0017, Delivery Order Numbers 2, 3, & 4

Typeset by: J. L. Yedlowski, F. D. Tidwell, and D. Lomax

Printed by: Printing Department
Southern Methodist University

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ABSTRACT

Cooper Lake, located at and below the confluence of the principal upper drainage tributaries of the South Sulphur River contains cultural resources relating to the full spectrum of human use of this region of northeast Texas. Archaeological investigations have been performed in this area for the last 35 years. This report presents the results of a multidisciplinary investigation of a 4700 acre embankment and borrow pit area at Cooper Lake. Geophysical and geomorphological studies were undertaken to understand buried and relief features of the landscape, and the potential human use or occupation of these geomorphic features. Ethnohistorical interviews and archival and historical researches were performed to completely document the written information relating to previously occupied properties of the project area. Archaeological studies include archaeobotanical, zooarchaeological, osteological, malacological, and radiocarbon analyses; studies of lithic, ceramic, and other tool technologies; intra- and intersite spatial analyses; and, where possible, reconstruction of site and study area chronology, subsistence, and seasonality and duration of occupation.

MANAGEMENT SUMMARY

The archaeological and historical investigations of the Embankment portion of Cooper Lake were performed by the Archaeology Research Program of Southern Methodist University under contract DACW63-87-0017. This work consisted of archaeological survey, testing and evaluation, and intensive data recovery under a series of three work orders (i.e., Work Orders 2, 3, and 4) issued by the Fort Worth District, U.S. Army Corps of Engineers.

The survey carried out under these work orders covered a 4700 acre area, wherein 10 prehistoric and no historic sites had been recorded previously. Thirty-three new prehistoric and 27 historic sites dating from the Paleo-Indian period to 1939 were recorded during this phase of work.

Testing evaluations were performed at a total of 43 prehistoric and 27 historic sites. This work included the reevaluation of sites previously investigated by SMU, as well as sites addressed by the University of North Texas. Historic domiciles, farmsteads, and industrial sites were among the properties which received testing evaluations. Prehistoric property types included camps, buried within floodplain sediments and in non-aggrading upland settings; larger, more intensively occupied sites on terrace and remnant floodplain sediments; and low density, short-term occupations along tributaries of the South Sulphur River.

Intensive data recovery was performed for four prehistoric and five historic sites. The reevaluation of previous work at 41HP105 added to the number of intensively investigated sites in the Embankment area. Both historic and prehistoric sites received substantial hand and machine excavations.

INTRODUCTION, SCOPE, AND ARCHAEOLOGICAL BACKGROUND

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On 3 December 1986, the Archaeology Research Program (ARP) of Southern Methodist University (SMU) was selected through competitive bid by the U.S. Army Corps of Engineers (CE), Fort Worth District to provide archaeological services for the Cooper Lake Reservoir, Delta and Hopkins counties, Texas (Figure 1-1). The reservoir was authorized by Congress in 1955 and purchasing of land began in the 1960s. It is multi-purpose and will provide flood protection and water, as well as offering recreational opportunities. The archaeological work was to be conducted under an annual contract renewable yearly for up to five years. Specific scopes of work would be issued on a task-by-task basis using delivery orders. ARP's first two delivery orders were issued on 15 February 1987 and required a survey and testing of 1902.8 ha (4700 ac) as well as a draft research design. Between April and 2 June 1987 two more delivery orders were issued. These orders requested archaeological testing and intensive excavations of sites within the proposed Cooper Dam and Embankment construction areas. The present report covers Delivery Order Numbers 2, 3, and 4.

Cooper Lake will be a 11,741 ha (29,000 ac) reservoir constructed by the U.S. Army Corps of Engineers on the South Sulphur River ca. 170 km (100 mi) northeast of Dallas, Texas. Land clearance for construction of a 4.1 km (2.6 mi) long, rolled earth dam located 24 km (15 mi) southeast of Cooper, Texas was

begun in August 1987. The flood control pool will inundate up to 136 m (446.2 ft) above mean sea level (amsl) and extend upstream along both the South Sulphur and its tributary, the Middle Sulphur. In addition to the inundated areas, another 2024.3 ha (5000 ac) of parklands are also currently proposed, making the entire project area a total of 13,765.2 ha (34,000 ac).

Archaeological investigations of the Cooper Lake project area were first initiated in the 1950s by the River Basin Surveys. Between 1970 and 1976, Southern Methodist University conducted six seasons of investigations culminating in five major reports (Doehner and Larson 1978; Doehner et al. 1978; Hyatt and Doehner 1975; Hyatt and Skinner 1971; Hyatt et al. 1974). From 1976 to 1985, no archaeological field work was conducted and plans for Cooper Lake were temporarily suspended.

In 1985, the Corps of Engineers reinstated the Cooper Lake Project as a result of renewed project funding. Ancillary studies related to archaeological investigations were resumed in May 1986 when geological studies by Prewitt and Associates, Inc. were conducted in preparation for requesting bids on the remaining archaeological tasks. From September 1986 to June 1987, North Texas State University, through Alan Plummer and Associates, Inc., conducted emergency survey and excavations in order to clear the 610 m (2000 ft) wide embankment corridor.

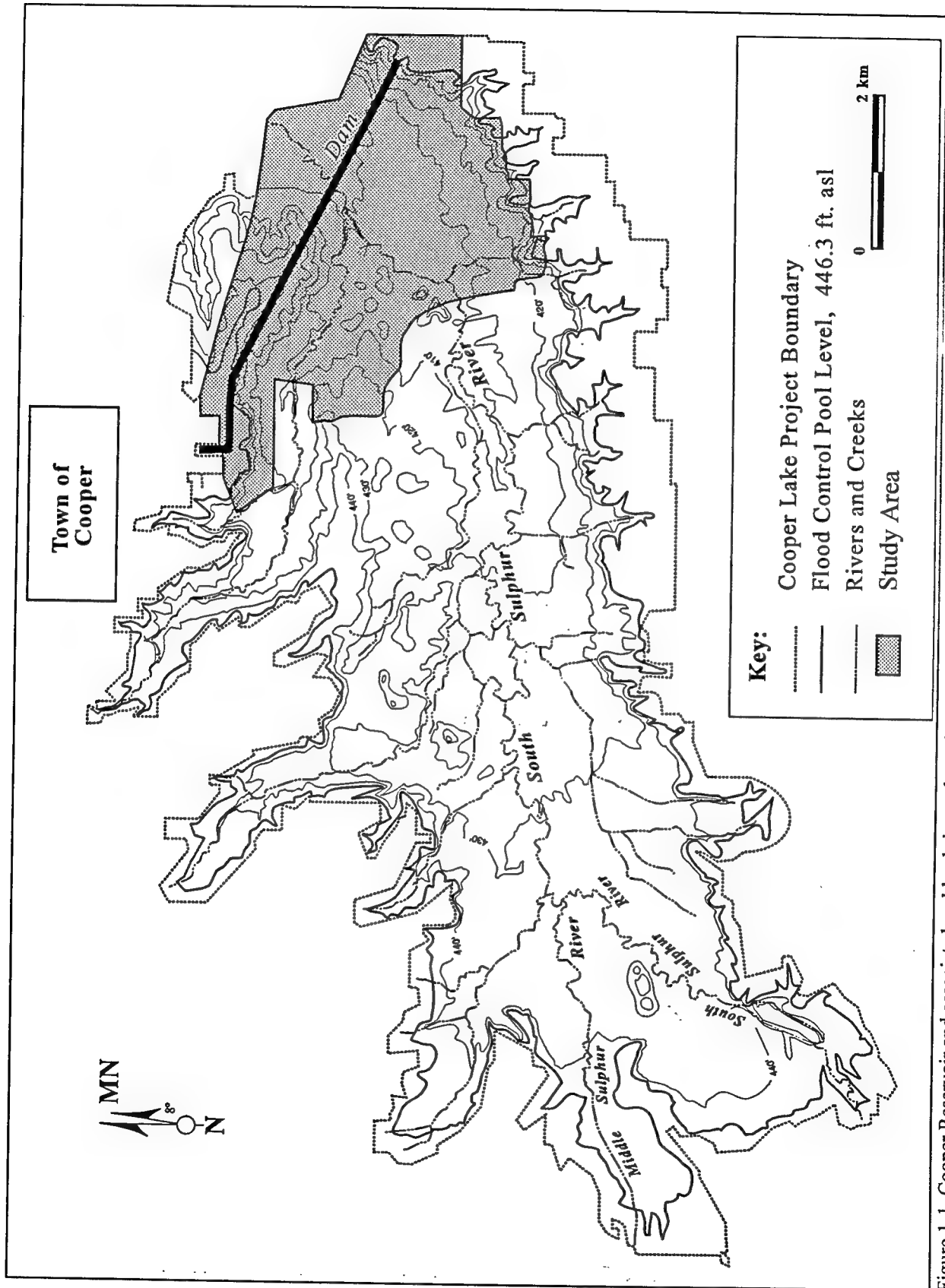


Figure 1-1. Cooper Reservoir and associated parklands in northeast Texas. The Embankment Area covered in this report is shaded.

In February 1987, the Archaeology Research Program of Southern Methodist University received a contract, joined the field effort, and initiated investigations of areas selected for possible borrow pit locations and areas within the greater Embankment construction zone. In all, ARP personnel surveyed 1902.8 ha (4700 ac) and located 33 prehistoric and 27 historic sites which had not been previously recorded. Archaeological test excavations were conducted at 27 historic sites and 43 prehistoric sites to evaluate their National Register eligibility. From this work, three prehistoric sites and five historic sites were recommended for intensive data recovery; site 41HP78 was added from NTSU's project area. Approval to proceed with these efforts was received from the Corps of Engineers on 2 June 1987 and the work was required to be completed by 15 July 1987.

Guidelines and contractual stipulations for all investigations and each survey and testing phase were specified in each delivery order. Additional requirements were also specified in the Cooper Lake RFP (DACW63-86-R0012) which subsequently served as the official contract (DACW63-87-D-0017) upon award. Together, these documents outlined general requirements for archaeological survey and testing methodologies, field work, intensive excavations and sampling considerations, and conformance to Federal as well as State (i.e., the Council of Texas Archaeologists' Guidelines) archaeological standards.

PROJECT LIMITS AND SCOPE OF WORK

The field work carried out by ARP under Delivery Orders 2, 3, and 4 was focused on 1902.8 ha (4700 ac) and the future locations of the Embankment structure as well as a potential borrow pit. Within this area, ARP was charged with the task to locate, identify, and evaluate all archaeological properties older than 50 years old. This work was naturally restricted in scope by both practical and fiscal limitations. First, deeply buried sites were excluded from consideration unless natural exposures made their presence known. Second, historic sites with components 50 years old or older also needed to exhibit strong integrity and limited evidence of post-1937 occupation and disturbance. Finally, all field work regardless of type had to be completed by mid-July 1987 as required under contract. With these limits set, all field investigations were completed by 18 July 1987. Laboratory processing and analyses were completed in September and a draft report was submitted on 15 January 1988.

ENVIRONMENTAL SETTING

The Cooper Lake Project area occupies an environmental position within Texas' Blackland Prairie (Figure 1-2). The physiography, geomorphology, soils, vegetation, climate, and hydrology of the Sulphur River, generally, and Cooper Lake, specifically, provide an important set of resources that may have restricted or possibly enhanced human use of the landscape. None of these variables have remained static over the past 12,000 years and consequently, they offer some possible insight into understanding human settlement history within the project area.

PHYSIOGRAPHY

The Cooper Lake Embankment construction area lies at river mile 23.2 on the South Sulphur River, Delta and Hopkins counties, Texas. It is located on the eastern edge of the Cooper South (1964) and the western edge of the Tira (1964) 7.5' USGS Topographic Quadrangle maps. The center of the project area is approximately located at UTM-Easting 255000 / Northing 3691000, and Latitude 33°25' Longitude 95°30'.

Cooper Lake is located within the Ouachita Folded Belt physiographic province, which is characterized by northeast-southwest trending geologic strata. The oldest geologic strata are located north of the South Sulphur River and consist of interbedded clay, marl, and sand known as the Navarro Group. These rocks formed during the Upper Cretaceous over 65 million years ago. South of the South Sulphur, the bedrock strata are composed of calcareous clays and limestones of the Midway Group. These rocks were formed during the Paleocene from approximately 40 to 65 million years ago.

Due to the underlying tectonics of the Ouachita Folded Belt, a number of fault lines extend through the project area. One major fault extends from just north of Commerce through the Deep Well Crossing south of Cooper, and then across the South Sulphur River near the Dam site. Two oil gas test wells were drilled near the Deep Well Crossing, and a hydrogen sulfide refinery is present near Peerless. No wells are known within the Embankment project area.

GEOLOGICAL SETTING

The South Sulphur River is an underfit stream occupying a broad, Holocene filled valley superimposed on relict Pleistocene channels and terraces. The upper Sulphur River Basin includes the Cooper Lake project

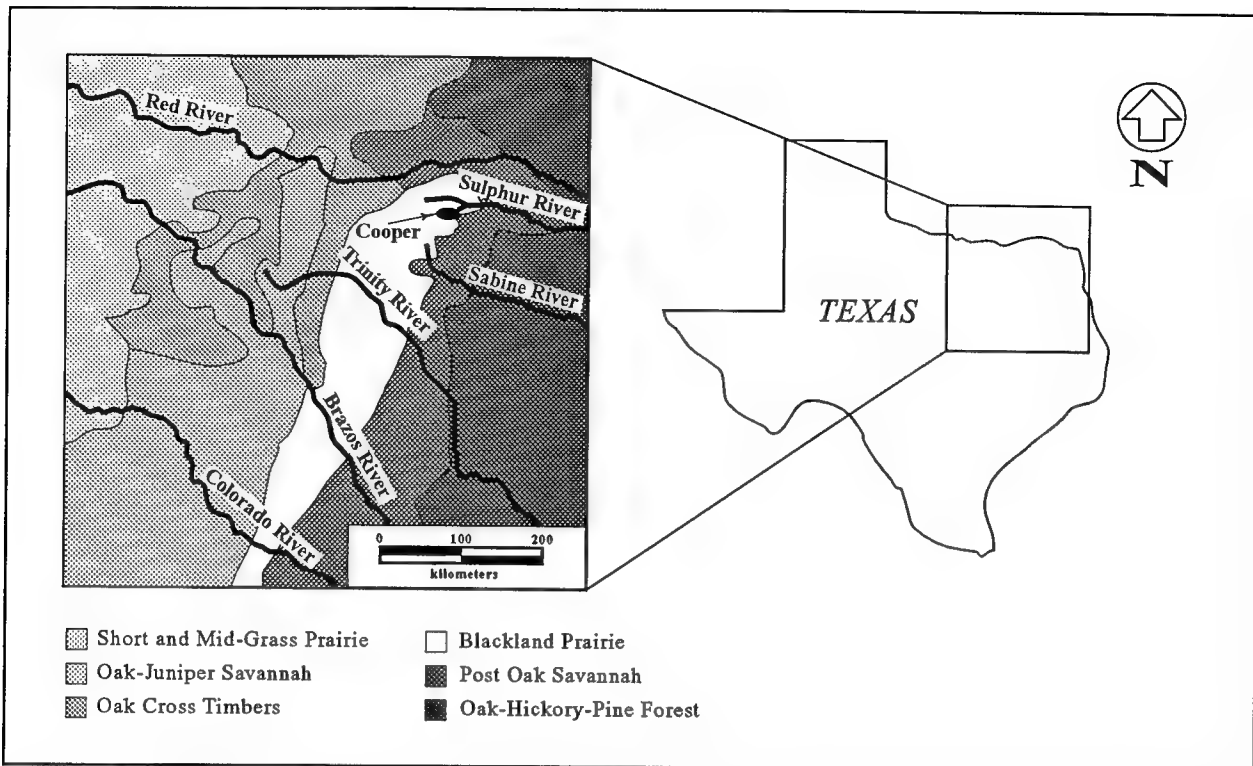


Figure 1-2. Location of the Cooper Lake project area in relation to major environmental zones in northeastern Texas (after K  chler 1964).

area and consists of the North, Middle, and South Sulphur drainages. The South and Middle Sulphur Rivers converge within the proposed Cooper Lake and flow easterly to join the North Sulphur River about 25 km (15 mi) east of the dam. The combined rivers flow to the east and join the Red River 177 km (110 mi) east of Cooper Lake in southwest Arkansas near the town of Doddridge.

Delta and Hopkins counties straddle the western margin of the Gulf Coastal Plain. In this area, Cretaceous and Eocene marine and near shore coastal deposits were laid down between 60 and 100 million years ago as the former Gulf coast embayment receded southeastwards. The bedrock deposits consist of intermittent grades of limestone, sandstone, and marls that dip northeasterly and control some of the Pleistocene stream drainages that have evolved.

In the general Cooper Lake area, Midway Eocene and Upper Cretaceous bedrock formations are present. These two units constitute deposits ranging 100-200 m (328.1-656.2 ft) thick and contain sandstones, shales, limestones, and marls with marine fossils locally abundant in some horizons.

Above the bedrock in this area are Pleistocene and Holocene unconsolidated alluvial deposits representing

weathered and often truncated terraces. Broad upland gravel deposits known as Uvalde gravels (actually Ogallala) are present. These contain quartzitic and siliceous gravels, cobbles, as well as silicified wood (petrified wood). These gravels provided Native Americans with much lithic source material for stone tool production. Bedrock quarry sources of good quality siliceous lithic materials, however, are unknown in the Cooper area or anywhere nearby. Reconnaissance for local gravel deposits containing high quality lithic material useful for stone tool production have been conducted recently by Larry Banks (n.d.).

GEOMORPHOLOGY, STREAMFLOW, AND PALEOHYDROLOGY

The drainage basin above the project area is estimated at 848 km² (527 mi²). The primary streams are the South and Middle Forks of the Sulphur River. Due to the dip of the geologic strata, tributary streams entering from the north have larger drainage basins. Major streams in the project area include Jernigan, Johns, and Doctors Creeks. Stream gaging station records have been kept by the U.S. Army Corps of Engineers back to 1942. Periods

of peak flow are frequently recorded in the months of May and June, and February and March. Maximum flow ranges up to 11,803 m³/sec (38,700 ft³/sec). Periods of no flow are encountered during late summer or winter months. A study of the correlation between tree-ring chronologies, streamflow, and the Palmer Drought Severity Index indicates that it may be possible to reconstruct the past streamflow and drought episodes for the last 300 years. The correlation of tree growth and mean daily discharge is significant at the .05 level for February, March, May, and June, all months of peak discharge. Tree growth is highly correlated ($p \leq 0.001$) with the Palmer Drought Severity Index for April, May, June, and July (see Appendix F for details).

The geomorphic history of the stream channels within the South Sulphur floodplain is currently unknown because of major Holocene fluvial infilling of the late Pleistocene valley. Today, and for the past several thousand years, the South Sulphur has been dominated by a single channel with a quarter mile wide meander belt (Figure 1-3). A minor floodplain backwater channel is located ca. 0.9 km (0.6 mi) south of the main channel. This may be an abandoned main channel, or simply a channel cut by high floodwaters and draining the southern half of the Sulphur Bottom.

Tributary streams appear to exert a great influence on the streamflow of the project area. Jernigan, Johns, and Doctors Creeks comprise a large drainage area to the north of the South Sulphur. These streams drain broad rolling prairies and contribute significant runoff at times. Tributaries originating from the escarpment south of the South Fork drain smaller areas and are primarily intermittent. Their steeper gradients contribute to alluvial fan-like deposits which interconnect to form a broad apron of sediments along the base of the southern valley flanks above the 126.6 m (415 ft) amsl contour.

SOILS

Three broad groupings of soils are present in the project area: 1) upland, 2) slope, and 3) bottomland (Figure 1-4); characterized by soils formed from different parent materials and then accentuated by differences in local vegetation, slope gradient, moisture retention, and surface exposure. Upland soils comprise 12%, slopes 23%, and bottomlands 65% of the project area (1880 ha [4700 ac]). The absolute elevation in Cooper is 149.7 m (491 ft) amsl for the northern end of the project area. At Doctors Creek, the elevation is 125 m (410 ft) amsl, the Doctors Creek interfluvium with the South Sulphur Fork is 130 m (425 ft) amsl, the South Fork is 119 m (390 ft) amsl, the edge of the southern escarpment is 140 m (460

ft) amsl, and the uplands to the south are 158.6 m (520 ft) amsl. Variations in topography and parental material have contributed to the culmination of over 30 major soil types along the South Sulphur River.

The Wilson Silt Loam comprises over 60% of the upland landscape. Pockets of the Freestone-Hicota Complex comprise 15% of the uplands. These are sandy rises (i.e., pimple or prairie mounds) with underlying clays (Figure 1-4). The Annona and Crockett soils form linear bands and pockets along the sloping interface between uplands and bottomlands where slopes range from 1-4%.

The interfluvium between Doctors Creek and the South Sulphur River is over 7.6 m (25 ft) lower than the upland north of Doctors Creek. However, a broad expanse of Wilson Silt Loam (30%) occupies the upper portion of this interfluvium. A series of mound fields with Freestone-Hicota soils are present, along with substantial pockets of Crockett Loam (totaling 20% of the interfluvium area). The Benklin Silt Loam occupies the lower portion of this area.

The South Sulphur Bottom consists of the Kaufman and Trinity clays, accounting for 48% of the entire project area. These soils are frequently flooded. Ridges with pockets of Annona Loam and Kaufman-Hicota soils also are present in the bottomland. South of the South Fork, the Kaufman Clay grades into a different soil, the Nahachie, which contains colluvial material in its soil profile. The Nahachie forms an apron along the base of the southern valley wall.

Different slope soils have formed south of the South Fork in comparison to the same environmental zone north of Doctors Creek. The slopes range from steep to gradual (5-12%). The Bazette Clay Loam comprises 80% of this environmental zone. The Ellis Clay is somewhat more eroded.

The uplands south of the southern valley wall range from 140-158.6 m (460-520 ft) amsl and consist of linear projections which have been carved by erosion. A majority of these narrow interfluviums contain Crockett Loam and Silt Loam soils (60% of this environmental zone). Pockets of Leson Clay are present with 3-5% slopes. At the end of terrace ridges, eroded Woodtell Loams (5-12%) are often present.

NATURAL VEGETATION ZONES

Vegetation in the project area is greatly influenced by soil type, soil moisture, or flooding. Furthermore, native vegetation zones have been irreparably altered by post-settlement landuse, agriculture, and the introduction of weedy and European species. A botanical study of existing vegetation at Cooper conducted in 1975

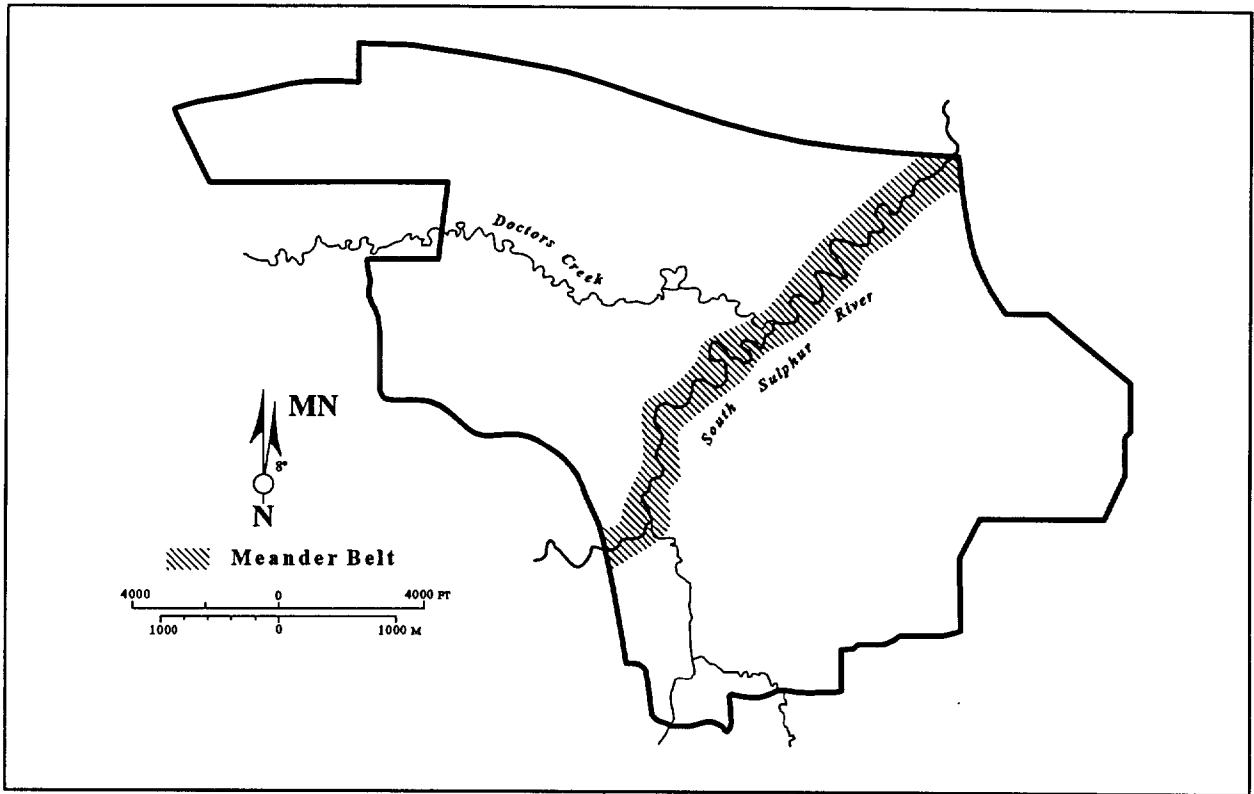


Figure 1-3. Location of the South Sulphur River meander belt through the Embankment study area at Cooper Lake.

(Doehner et al. 1978) recognized the preponderance of disturbed vegetation due to land clearance. Use of the information contained in General Land Office records for studying presettlement vegetation was not common in Texas at that time.

To resolve some of the problems of post-settlement alteration of original vegetation, early land survey notes were examined during the 1987 season by SMU staff; recording distance to each tree. These trees were called "witness" trees since they documented the location of a survey point and allowed others to find the same corner point or to accurately locate selected tracts of adjacent unclaimed Public Domain. Historical researchers using General Land Office (GLO) records in Texas have identified data useful in paleoenvironmental reconstruction and in documenting the spread of historic settlement across a region.

Briefly, witness trees from many tract corners comprise widely spaced data points which give a crude estimate of the density of tree cover (i.e., mean distance [in varas; 1 vara=33.3 in=83.82 cm]) from survey corner to observed trees. In addition to these points, the actual boundaries of the forest/prairie border were mapped as surveyors traversed major survey lines and property lines.

By correlating tree and grassland boundary information from the GLO notes with the distribution of soil types, topography, and drainage class, a detailed plant community map was reconstructed for the Cooper area.

Six broad vegetational zones are evident (Figure 1-5) and exhibit a radically different picture than that of the 1975 botanical survey (Doehner et al. 1978). In 1975, the dominant species were locust, hackberry, ash, bois d'arc and cedar elm. Post oak, elm, pecan, walnut, willow, blackjack oak, and plum were less common. There was a low incidence of red cedar, hickory, cottonwood, other oaks, and fruit bearing trees. The GLO data indicate that post oak was a dominant species in all environmental zones (Table 1-1). Therefore, the 1975 botanical study is of little use in characterizing the potential vegetation available to the prehistoric occupants of the area.

The results of the GLO research indicate that the uplands north of the South Fork Sulphur were very similar in vegetative setting. Corners of 51 of 56 land tracts were not tied to any witness trees and therefore may be interpreted as being located in large open prairies. The remaining corners yielded only six witness trees with a mean distance of 41.3 m (49.3 varas, SD = 15.4 varas) indicative of fairly open prairies. In the post oak

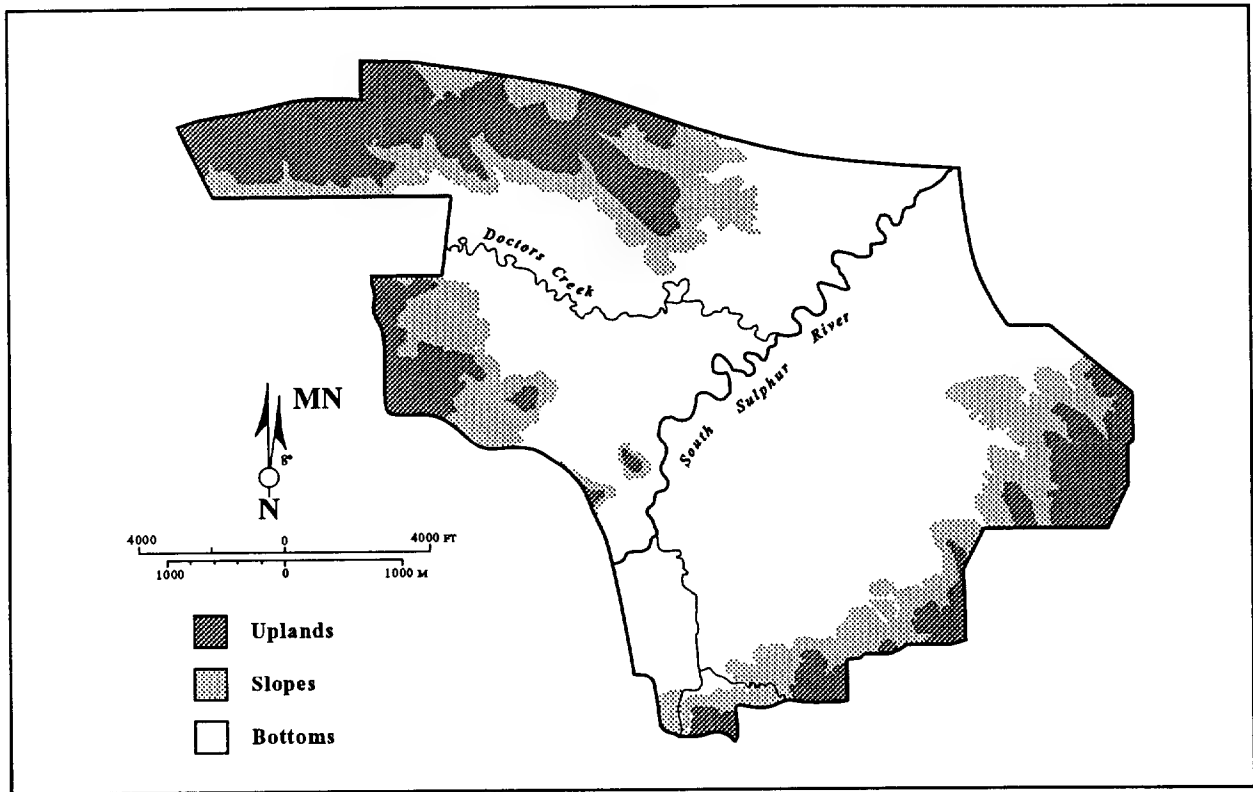


Figure 1-4. Location of the three major soil groups in the Cooper Lake Embankment study area. These groups are determined by general physiographic setting.

savannah, all 20 land tract corners had witness trees, with a mean distance of 17.1 m (20.4 varas, SD = 19.9 varas). Post oak was the dominant species in the prairie (60%), while blackjack oak comprised 50% of the post oak savannah. Elm and hickory saplings were the only other trees noted.

In the slope forest north of Doctors Creek, only 8 tract corners provided tree data. Post oak comprised 64%, blackjack oak 27%, and pin oak 9% of the species noted as witness trees. Mean distance from the survey corners was 9.1 m (10.8 varas, SD = 7.7 varas).

In the bottomlands, two major zones could be easily distinguished: forest and prairie. The prairie areas were seasonally inundated. A total of 46 land tract corners fell in this environmental zone, with only 6.5% in actual prairie. This zone contained the most diverse range of tree species with elm (20%), post oak (18%), ash (18%), hickory (9%), hackberry and pin oak (each 6%), and water oak, Spanish oak, and red oak with 4% each. Minor occurrences of bois d'arc, willow, chittum, cottonwood, and red haw were observed. Only elm saplings were noted in bottom prairies. A post oak bottom forest was present on the southern edge of the South

Sulphur bottom.

In the uplands south of the South Sulphur, prairies were present on the linear, dissected ridge tops and post oak savannahs were present along the south valley margin and slopes. Prairie areas had no recorded trees at six tract land corners. Twenty-two corners fell in post oak savannah. Post oak (29%), hickory (24%), hackberry (14%), and blackjack oak were the dominant trees.

PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

Archaeological investigations in the Cooper Lake area have been conducted for nearly three-quarters of a century. The earliest professional investigations in the Upper Sulphur River Basin were part of larger archaeological reconnaissance of northeastern Texas by J.E. Pearce of the University of Texas. In 1919 and 1920, Pearce visited sites in the Neches, Sabine, and Cypress valleys and checked reports of finds within the Upper Sulphur drainage in Hopkins County (Davis 1970:29). In 1930, University of Texas field crews began a program of important excavations at numerous East Texas sites

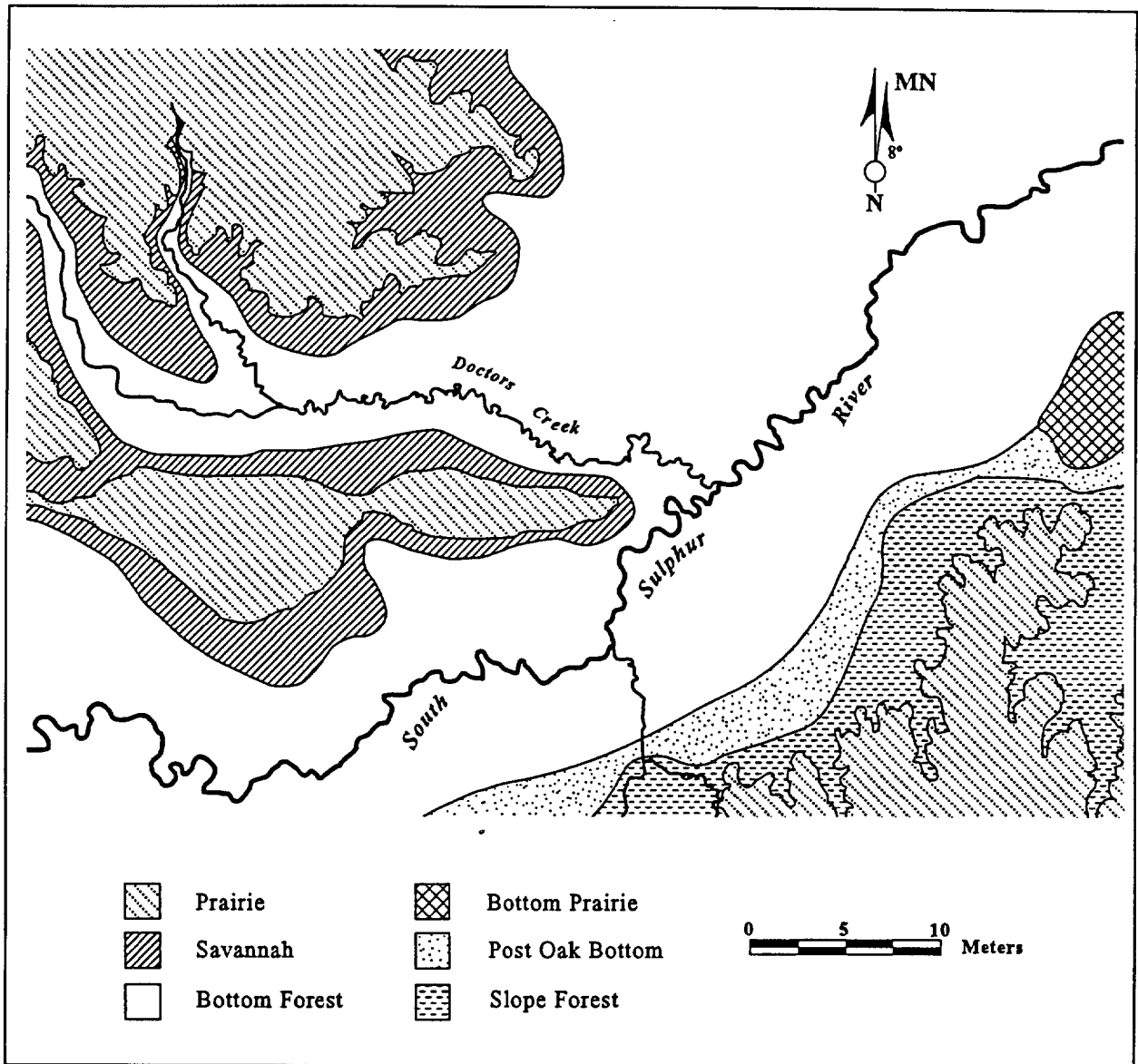


Figure 1-5. Reconstruction of major mid-nineteenth century vegetation zones in the Embankment study area and surrounds based on 1838-1862 General Land Office surveyor's field notes.

(Pearce 1932). Over the next decade this work was concentrated primarily on cemetery and mound sites, and it produced much of our present data base for Caddoan prehistory in Texas.

Several sites within the Sulphur River drainage were also investigated in the 1930s, although the results of this work are found primarily in the unpublished field notes of field foremen A.T. Jackson, W.H. Goldschmidt, and A.M. Woolsey. These sites included the Mustang Creek Mound and the Farrar and W.A. Ford sites (Goldschmidt 1935) located along the Sulphur River ca. 48.3 km (30 mi) east

of Cooper Lake. Somewhat closer and to the southeast of Cooper Lake, several sites within the tributary White Oak Bayou drainage were also investigated, including a Late Caddoan cemetery at the Culpepper site (Scurlock 1962).

The River Basin Survey in Austin, later the Texas Archaeological Salvage Project, was largely responsible for the next phase of archaeological research. From the late 1940s through the 1960s preliminary archaeological surveys and salvage excavations were carried out at a number of federal reservoirs in northeastern Texas. Within the Blackland Prairie and Cross Timbers regions

TABLE 1-1

Listing Of Trees Observed By General Land Office Surveyors By Percentage And
Environmental Zones In Delta And Hopkins Counties

Tree Species		Upland N. of Sulphur		Slope Delta Co.	Bottom Sulphur		Upland S. of Sulphur	
Latin	Common	Prairie	Post Oak Savannah		Forest	Prairie	Prairie	Post Oak Savannah
<i>Quercus</i>								
<i>stellata</i> W.	Post Oak	60	42	64	18	—	—	30
<i>marilandica</i> M.	Blackjack Oak	—	50	27	—	—	—	11
<i>nigra</i> L.	Water Oak	—	—	—	4	—	—	—
<i>falcata</i> M.	Spanish Oak	—	—	—	4	—	—	—
<i>falcata</i> M.	Red Oak	—	—	—	4	—	—	8
<i>velutina</i>	Black Oak	—	—	—	2	—	—	3
<i>palustris</i>	Pin Oak [sic]	—	—	9	6	—	—	6
<i>Ulmus</i>								
<i>americana</i> L.	Elm	20	—	—	21	100	—	—
<i>Celtis</i>								
spp.	Hackberry	—	—	—	6	—	—	—
<i>Fraxinus</i>								
spp.	Ash	—	—	—	18	—	—	14
<i>Maclura</i>								
<i>pomifera</i> Raf & <i>pomifera</i> Schneid	Bois d'arc	—	—	—	2	—	—	3
<i>Populus</i>								
<i>deltoides</i> Marsh	Cottonwood	—	—	—	1	—	—	—
<i>Salix</i>								
<i>nigra</i> Marsh	Willow	—	—	—	2	—	—	—
<i>Crataegus</i>								
<i>mollis</i> Torr. & <i>mollis</i> Gary	Red Haw	—	—	—	1	—	—	—
<i>Carya</i>								
spp.	Hickory	20	8	—	9	—	—	25
<i>Bumelia</i>								
<i>lanuginosa</i>	Chittum	—	—	—	2	—	—	—
Total number of trees		6	24	11	82	1	—	34
Total number of corners		51	20	8	43	3	6	22

located to the west of Cooper Lake, sites of the Upper Trinity River drainage were investigated at Garza-Little Elm (Lake Lewisville) and Lavon Reservoirs (Stephenson 1949, 1952). Other major projects in nearby drainages included Ferrell's Bridge Reservoir (Lake O' the Pines) on Cypress Creek (Davis and Davis 1960; Jelks and Tunnell 1959) and Iron Bridge Reservoir (Lake Tawakoni) on the

Upper Sabine River (Duffield 1961; Duffield and Jelks 1961).

Within the Sulphur River drainage itself, a 1948 survey of Texarkana Reservoir led to excavations in 1952 at the Knight's Bluff, Sherwin, and Snipes sites (Jelks 1961b). Texarkana Reservoir (now Wright Patman Lake) is located on the lower Sulphur River downstream from

Cooper Lake, and additional survey work was conducted there in response to its proposed enlargement (Briggs and Malone 1970). This proposed enlargement has not been undertaken, and none of the recorded sites have been investigated further. More recently, survey and test excavations were carried out along the Sulphur River in Titus County by Heartfield, Price, and Greene, Inc. (1982), and by Espey, Huston and Associates, Inc. in the Monticello-Winfield Lignite Mine (Espey, Huston and Associates, Inc. 1986).

An initial archaeological survey of the proposed Cooper Lake was conducted in 1951 as a part of the River Basin Surveys for the Smithsonian Institution. A total of 24 prehistoric sites were recorded in the two weeks devoted to reconnaissance, of which 15 were located within the limits of the proposed lake (Moorman and Jelks 1952). In 1959, archaeologists from the Texas Archaeological Salvage Project revisited and evaluated several of these sites, and recorded two additional prehistoric sites (Duffield 1959). As a result, test excavations were recommended for the Manton Miller Site (41DT1). These excavations were carried out later that same year and subsequently reported by Johnson (1962).

During the same general period, members of the Dallas Archaeological Society (DAS) began investigating sites in the Cooper Lake area and publishing the results in their newsletter, *The Record*. Human burials were excavated at the Spike (X41DT33 now 41DT16, Hatzenbuehler 1953) and the Tick (X41DT37 now 41DT6, Harris 1955) sites. DAS members also conducted excavations at the previously unrecorded L.O. Ray site (X41DT66 now 41DT21, Gilmore and Hoffrichter 1964).

A more comprehensive survey of the lake area, funded by the National Park Service, was undertaken in 1970 by the Archaeology Research Program of Southern Methodist University. Although complete coverage of the lake was not accomplished during this two month survey, a total of 105 prehistoric sites were recorded (Hyatt and Skinner 1971). This survey was the first of several studies to be undertaken in the Cooper Lake Project area by SMU. Although funding did not permit the level of intensive investigations usually pursued today, SMU's research continued intermittently for the next eight years.

Following the 1970 survey, SMU conducted investigations of varying intensity at a total of 33 sites (Table 1-2). This work was accomplished over six separate field seasons between 1970 and 1976. Conspicuously absent from this and earlier research was comparable consideration of the sites dating to the historic period.

Historic components were encountered on several prehistoric sites that received excavations (Table 1-3). An initial overview and background study was conducted by Saunders (1978), and several historic assemblages recovered from aboriginal sites in 1970-1976 by SMU (Doehner et al. 1978) received preliminary analysis. A historic trade bead (Sawmill site, 41HP77) and a gunflint (Rebel Ridge site, 41HP80) were reported, but the majority of artifacts were related to twentieth century domestic occupations or farm related structures.

A number of other historic properties were casually observed and noted during survey and generally included cisterns/wells, dilapidated dwellings, and scattered trash dumps. These were usually thought to post-date 1935, although verification was seldom sought and most historic sites were automatically dropped from further consideration following the general practices used in cultural resources management (CRM) studies of the period (Doehner et al. 1978:20). A historic research design was not developed and all historic sites were apparently considered ineligible for nomination to the National Register of Historic Places.

As indicated, the Cooper investigations of the 1970s addressed few historic properties except for the work of Joe Saunders (Doehner et al. 1978:20). Saunders briefly described historic assemblages recovered from 16 prehistoric sites (Table 1-3). Of these, only four yielded assemblages useful for making reasonable site assessments and initial interpretations (41HP18, 41HP77, 41HP102, and 41HP37). In North Texas, historical properties in most major reservoirs began to be studied in the late 1970s (e.g., Richner and Lee 1976, 1977; Richner and Bagot 1978; Ferring and Reese 1981; Archaeology Research Program 1982). Now most CRM studies routinely address historic sites and buildings as well as the much older prehistoric archaeological remains.

PREHISTORIC CULTURE HISTORY OVERVIEW

The established culture-chronological sequence for northeast Texas (Figure 1-6) spans the time period beginning perhaps 12,000 years ago and ending at A.D. 1700 (Story 1981:142-152). A disproportionate amount of previous research has been concerned with Late Prehistoric, or Caddoan, period sites and this is reflected in the more detailed chronology available for these archaeological properties. By comparison, the Paleo-Indian and Archaic periods are poorly known, and the dates assigned to their various subdivisions are somewhat arbitrary.

TABLE 1-2

Summary Of Cooper Lake Sites Investigated By SMU: 1970-1976 Seasons

Year Investigated (Published Report) State Number	SMU Temp. Number	(Site Name)	State Number	SMU Temp. Number	(Site Name)
1970 (Hyatt and Skinner 1971)					
41DT30	X41DT12	(Jarrel) ⁴	41HP74	X41HP2	(Society) ^{1,4}
41DT31	X41DT13	(McKinney) ¹	41HP98	X41HP30	(Finley) ⁴
41DT73	X41DT59 ^{1,4}				
1972 (Hyatt et al. 1974)					
41DT71	X41DT57	(Ewing) ¹	41HP78	X41HP7	(Lawson) ³
41DT80*	X41DT68*	(Thomas) ^{1,4}	41HP105*	X41HP37*	(Cox) ^{1,4}
1973 (Hyatt and Doehner 1975)					
41DT1	X41DT1	(Manton Miller) ^{1,4}	41DT80*	X41DT68*	(Thomas) ²
41DT35*	X41DT17*	(Thalya) ¹	41HP105*	X41HP37*	(Cox) ^{1,6}
1974-1975 (Doehner and Larson 1978)					
41DT6	X41DT37	(Tick) ²	41DT5*	X41DT36*	(Luna) ¹
41DT37	X41DT19	(Ranger) ³	41DT35*	X41DT17*	(Thalya) ²
41DT38	X41DT20	(Nathan Gable) ¹	41HP102	X41HP34	(Arnold) ³
1976 (Doehner et al. 1978)					
41DT16	X41DT33	(Spike) ²	41DT79	X41DT67	(Benefield) ⁵
41DT29	X41DT11	(Free Hope) ⁷	41DT84	X41DT72	(Overlook) ¹
41DT36	X41DT18	(Sharita) ¹	41HP18	X41HP19	(Carp) ¹
41DT42	X41DT25	(Lilypad Pond) ¹	41HP77	X41HP5	(Sawmill) ¹
41DT44	X41DT27	(Thundermouth Hollow) ¹	41HP80X	41HP11	(Rebel Ridge) ¹
51DT51	X41DT35	(Garbage Dump) ⁷	41HP81	X41HP12	(Willow Ann) ¹
41DT52*	X41DT36*	(Luna) ²	41HP87	X41HP18	(April) ¹
41DT75	X41DT61	(Naiolithic) ¹	41HP88	X41HP20	(Razor's Edge) ¹
41DT78	X41DT64	(Dewitt) ¹	41HP103	X41HP35	(Buckshot) ¹

* Site listed more than once on table

¹ Limited test excavations² Test excavations³ Large-scale excavations⁴ Controlled surface collections⁵ Uncontrolled surface collections⁶ Mechanical scraping⁷ Surface inspection only**Paleo-Indian**

As it now stands, our knowledge of both Paleo-Indian and Archaic adaptations in northeast Texas is generalized and rather speculative. The Paleo-Indian presence in northeast Texas is indicated by a variety of fluted and unfluted lanceolate points recovered from

surface contexts (e.g., Carley n.d.; Preston 1972, 1974) and from excavations at multicomponent sites where they were mixed stratigraphically with materials from later occupations (e.g., Davis and Davis 1960; Johnson 1962; Duffield 1963). Possible remains of late Paleo-Indian period occupation have been reported from Delta County in the North Sulphur River drainage (Slaughter and

TABLE 1-3

Prehistoric Sites In The Cooper Project Area Yielding Assemblages Of Historic Artifacts (After Doehner et al. 1978:20)

Site Name	Site Number	Artifacts	Age	Interpretation/Function
Spike	41DT16	3	20 th C.	Unknown (Litter?)
Tick	41DT6	20	20 th C.	Unknown (Light sheet refuse)
Thalya	41DT35	31	20 th C.	Unknown (Light sheet refuse)
Ranger	41DT37	459	19 th -20 th C.	Domestic sheet refuse
Lilypad Pond	41DT42	5	20 th C.	Unknown (Litter?)
Thundermouth Hollow	41DT44	64	20 th C.	Mostly barbed wire/Fencing
Luna	41DT52	23	L. 19 th -20 th C.	Unknown (Light sheet refuse)
Naiolithic	41DT75	29	20 th C.	Domestic sheet refuse
Thomas	41DT80	2	20 th C.	Unknown (Litter)
Carp	41HP18	0	20 th C.	Outbuilding
Sawmill	41HP77	407	20 th C.	Sawmill?/Domestic
Rebel Ridge	41HP80	4	19 th C.	Unknown (Protohistoric?)
April	41HP87	3	20 th C.	Unknown (Litter)
Arnold	41HP102	2328	19 th -20 th C.	Domestic sheet refuse
Cox	41HP105	82	19 th -20 th C.	Unknown (Light sheet refuse)

Hoover 1963:144-147). At this paleontological locality, charcoal from a possible hearth near the edge of a fossil "pond" was radiocarbon dated to 9550±375 B.P. (SM532). About 15 m (50 ft) away, and associated with this same "pond" deposit, an apparently worked antler artifact was recovered. Elsewhere in this general area, these same late Pleistocene sediments (the Sulphur Ridge Formation) have yielded a variety of extinct fauna (Slaughter and Hoover 1963, 1965). There is as yet no direct evidence of Paleo-Indian exploitation of megafauna in northeast Texas leading some (Shafer 1977) to argue that a more generalized hunting and gathering economy prevailed. Population densities are thought to have been very low, and highly mobile bands probably traveled considerable distances within poorly defined territories (Story 1981:143).

Archaic

Even general temporal trends in diagnostic artifact styles are not well established for the Archaic period. Johnson's (1962) definition of the LaHarpe aspect was an early, major treatment of Archaic materials from East Texas. Temporal subdivisions within the LaHarpe aspect were defined primarily by changes in projectile point styles and the appearance of plain ceramics during the

terminal period. Story (1985:41) has suggested that the materials included under the early LaHarpe aspect by Johnson most likely date to the Middle Archaic period. Late LaHarpe is generally correlated with the Late Archaic period, and terminal LaHarpe with the subsequent Early Ceramic period. A virtual absence of good stratigraphic contexts and radiocarbon dates has hampered more recent efforts to refine the LaHarpe sequence (Story 1976:47-48; Thurmond 1981:94-95).

It is assumed that subsistence economics were based on hunting and gathering during the Archaic period. High residential mobility and low regional population densities appear to characterize the Early Archaic period (Story 1981:144, 1985:39). Throughout the Archaic period there is a trend toward population increase and reduction in group mobility. The end of the Late Archaic is marked by higher site densities, and possibly by seasonal aggregation of populations during times of resource abundance (Story 1981:144).

Early Ceramic

The initial occurrence of simple undecorated ceramics signals the beginning of the Early Ceramic period. This period may have begun as early as 200 B.C. in some portions of northeast Texas, although few

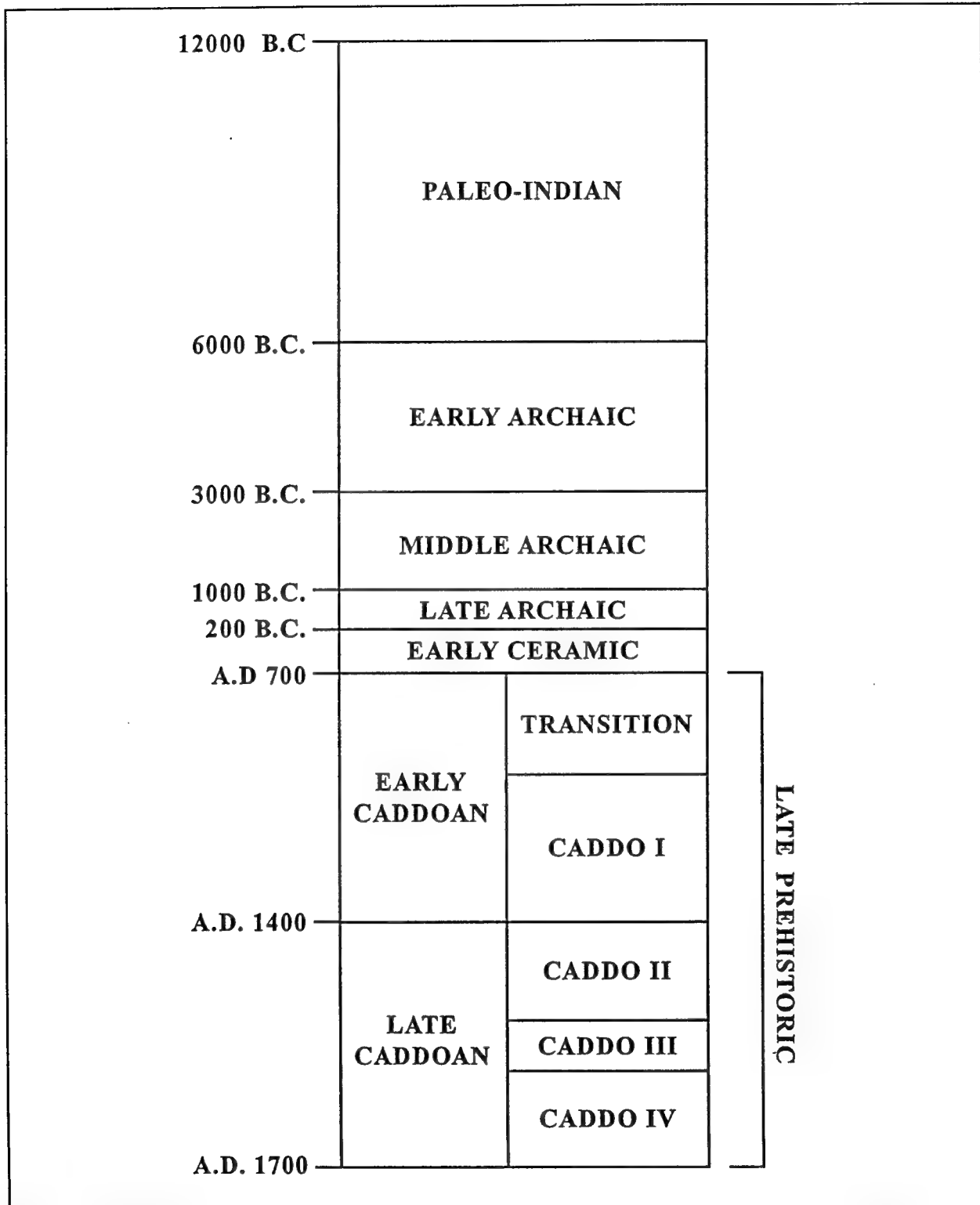


Figure 1-6. Culture chronology for northeast Texas prehistory (after Davis 1970:40-56; Story 1981, 1985).

radiocarbon dates are available. North of the Sabine River, this early ceramic tradition was dominated by grog and sometimes bone tempered wares often identified as Williams Plain, while further south sandy paste wares dominated (Shafer 1975; Story 1981:146). Somewhat later in this period, small conical burial mounds were being constructed elsewhere in East Texas (Jelks 1965:22-52; McClurkan et al. 1980) and in adjacent portions of Louisiana (Fulton and Webb 1953; Jensen 1968) and Arkansas (Schambach 1982:170-180). Subsistence economies apparently continued to be based primarily on hunting and gathering during the Early Ceramic period.

Although Early Ceramic period occupations of Cooper Lake have been recognized since the earliest excavations (Johnson 1962:267-268), their local manifestations are still inadequately defined. Radiocarbon dates from several Cooper Lake sites have fallen within this time period (Doehner and Larson 1978:157; Haas 1987:225-226). However, all of these sites were multicomponent, and it is not possible to determine clearly which subsets of their artifact assemblages and cultural features were associated with the Early Ceramic period occupations.

Late Prehistoric (Caddoan)

The Late Prehistoric stage in northeast Texas is characterized by a more sedentary lifestyle and an economy based upon tropical cultigen horticulture. This is also referred to as the Caddoan period. In many parts of northeast Texas during the early Caddoan period, ceremonial mound centers and elaborate burial practices signify the development of complex social and religious traditions. The material culture shows a highly developed ceramic tradition, introduction of the bow and arrow, and evidence of participation in an interregional exchange network. The Late Caddoan period is marked by a decline of Caddoan development. In many parts of northeast Texas, less stratified societies and more locally oriented exchange networks are indicated (Story 1981:151). The Caddo I - V terminology represents an attempt at chronological refinement that was formally proposed at the Eleventh Caddo Conference in 1968, and applied to northeast Texas by Davis (1970).

Within the greater northeast Texas region there is considerable sub-regional variation in cultural developments during the Caddoan period. The Cooper Lake area in particular lacks evidence of full participation in the Caddoan tradition (Doehner et al. 1978:210-219). There is a complete lack of documented mound sites in the upper Sulphur River drainage, and the burials at

Cooper Lake sites do not exhibit the elaborate burial practices and grave goods that are considered to be characteristically Caddoan. These differences may be related in some way to Cooper Lake's location along the junction of the eastern extension of the Tall Grass Prairies and the Post Oak Savannah, an environment that differs substantially from the Piney woods region which covers most of the Caddoan core area. The true Caddoan manifestation of East Texas exhibits increasing sedentism, particularly along the Red River. It is quite possible that the Late Prehistoric cultural heritage of Cooper Lake was somewhat less Caddoan-like in attributes and more distinct within itself (Moir and Jurney 1988:33; Jurney et al. 1989:25-32).

Results from two recent reservoir projects in Texas may be of particular relevance to investigating the Late Prehistoric period at Cooper Lake. One of these, Lake Fork Reservoir (Bruseth and Perttula 1981), is located about 50 km (31.1 mi) south of Cooper Lake in the upper Sabine drainage. One important result of this project was the documentation of Caddoan period subsistence strategies through the analysis of faunal and macrobotanical remains (Crane 1982; Perttula and Bruseth 1983). These results suggested that a broad based strategy of maize horticulture, supplemented with a variety of wild plant and animal resources characterized early Caddoan subsistence. In contrast, remains from the 15th century Steck site showed a narrower subsistence focus with a reliance on two foods: maize and deer (Perttula and Bruseth 1983).

Although located farther to the southwest and in the Trinity River drainage, the Richland/Chambers Reservoir is situated along the same prairie-forest ecotonal zone as Cooper Lake. A multi-year program of paleo-environmental and archaeological investigations was conducted there between 1980 and 1985. Studies of geology, soils, and palynology were used to reconstruct the local environment during the past 4000 years (Bruseth et al. 1987). Excavations at 15 prehistoric sites recovered substantial data from components covering this time span (Bruseth and Martin 1987a; McGregor and Bruseth 1987a). The prehistoric archaeological record was interpreted as documenting a developmental sequence of hunter-gatherer adaptations within a changing local environment. Evidence of maize was found only in post A.D. 1300 contexts, and even then it was only a supplement to a subsistence base of wild resources. Consequently, the composition of Late Prehistoric subsistence systems at Cooper Lake may provide an alternative model for a similar environmental setting and this focus may be important for future investigations.

PROTOHISTORIC AND HISTORIC CONTACT PERIODS

Native American populations in East Texas and Louisiana received European contact by the end of the sixteenth century. Little evidence of this earliest contact has been revealed in northeastern Texas. A primary reason for this is the high mobility of French and Spanish traders. Also, once the pattern of warfare and tribal dislocation began, the Native American groups themselves became more mobile, constantly in retreat from the European intrusion and settlement.

Sites of the earliest period of contact, still basically Late Prehistoric, may contain rare items passed as trade goods. Many of these sites are expected to be low density, short term occupations. One site, the Rebel Ridge Site (41HP80) investigated by SMU in the 1970s contained a small amount of historic artifacts, one of which was a European gunflint suspected of dating to this period. Another site, 41DT111, which was discovered during the current work, yielded a single white porcelain trade bead (eighteenth century), a Fresno point, and late prehistoric pottery which may also be indicative of European contact and a very late prehistoric date (i.e., post 1650 A.D.). Finally, one of the earliest historic farmsteads identified also yielded possible late contact prehistoric artifacts (see the site description for 41DT126). Mr. John Banks also reports that he collected trade beads from three burials at site 41DT31. It is quite possible that other protohistoric and contact period sites are located in the Cooper Lake area.

As these finds indicate, the Cooper Lake area is located in an active historic contact area, one marked by protohistoric, early historic, and rural agrarian expansion. Early Spanish and French outposts were located along the Red River (Gilmore 1986:1-19). Hunting and trading groups and exploring parties from some of these outposts interacted with immigrant Indian settlements and sometimes documented their locations.

The earliest recorded exploration anywhere near the Cooper area was Athanase de Mézière's exploration of the Red River in 1778. The 1788-89 expedition of Pedro Vial passed west of the project area on their trip from the Wichita village to Natchitoches, cutting across East Texas and bypassing the Great Bend (Tyson 1981:64). Apparently, a series of trails associated with the protohistoric Caddoan occupation of the region were used, following the Blackland Prairies into the East Texas forest. American trading expeditions (Davis/Dauni 1804-1805, House 1805) followed the same general route (Figure 1-7; after Flores 1985; Texas Sesquicentennial Press 1986), which was called the Coushatta-Pawnee

Trail (Dan J. Flores, personal communication 1988), apparently following drainage divides around Cooper.

Concerns over the United States border after the Louisiana purchase led to the Freeman-Custis expedition in 1806 (Flores 1984). This expedition was turned back by the Spanish. However, the subsequent Glass expedition (July to August 1808) passed north of the general Cooper area, crossing the South Sulphur near Talco and passing south of Paris (Flores 1985). Although downstream from Cooper, Glass provided detailed notes on flora and fauna, noting endemic prairie species in the uplands, the easternmost extension of the Great Plains. Caddo hunting paths were also noted.

Immigrant Indian groups also entered this area of East Texas in the eighteenth and early nineteenth centuries. During the late 1700s and early 1800s, highly mobile groups of Cherokee, Choctaw, Caddo, Kickapoo, Delaware, Kichai, Shawnee, and Wichita moved through Texas. These groups had assimilated some characteristics and material culture associated with the Anglo frontiersmen. Although the main settlements were along the Red River and along the Sabine River in Rusk and Cherokee Counties, the Cooper area was also located alongside the most accessible travel way to the Grand Prairie. Late prehistoric camps and settlements along the early crossings are possible within the project area and some artifacts recovered to date point to contact period trade within the general area.

The concerted expulsion of immigrant Indian groups began in 1834 with the murder of Chief Fields, followed by a treaty of 1835 sponsored by Sam Houston. The Republic denied all Indian claims except the Tigua in West Texas and the Alabama in Southeast Texas (through a Mexican Grant). The majority of all Indians were removed by 1839, but refugees continued to live in remote areas during the 1840s and 1850s.

The Cooper region was included in Wavel's contract granted by the Mexican Government (ca. 1835). GLO research indicates that the earliest land surveys were by J.M. Henri, filed in the San Augustine Land District. Documentation indicates that the grantees were legally given title in 1835, assigning all patents to James Reily, who paid Henri and completed the legal filing process in 1841. In 1845, another surveyor, D.A. Norton, noted that Henri actually surveyed his tracts in 1835, prior to the Texas Revolution. In Henri's notes, he uses the "Main Caddo Trace from the Grand Village on Caddo Lake to the Big Prairie" as a meridian, from which he started each land survey. As a result, the natural trails were used as datums to set some of the initial surveys. Since Texas Courts specify that subsequent surveyors "follow in the footsteps" of previous surveyors (Rounds 1941:27),

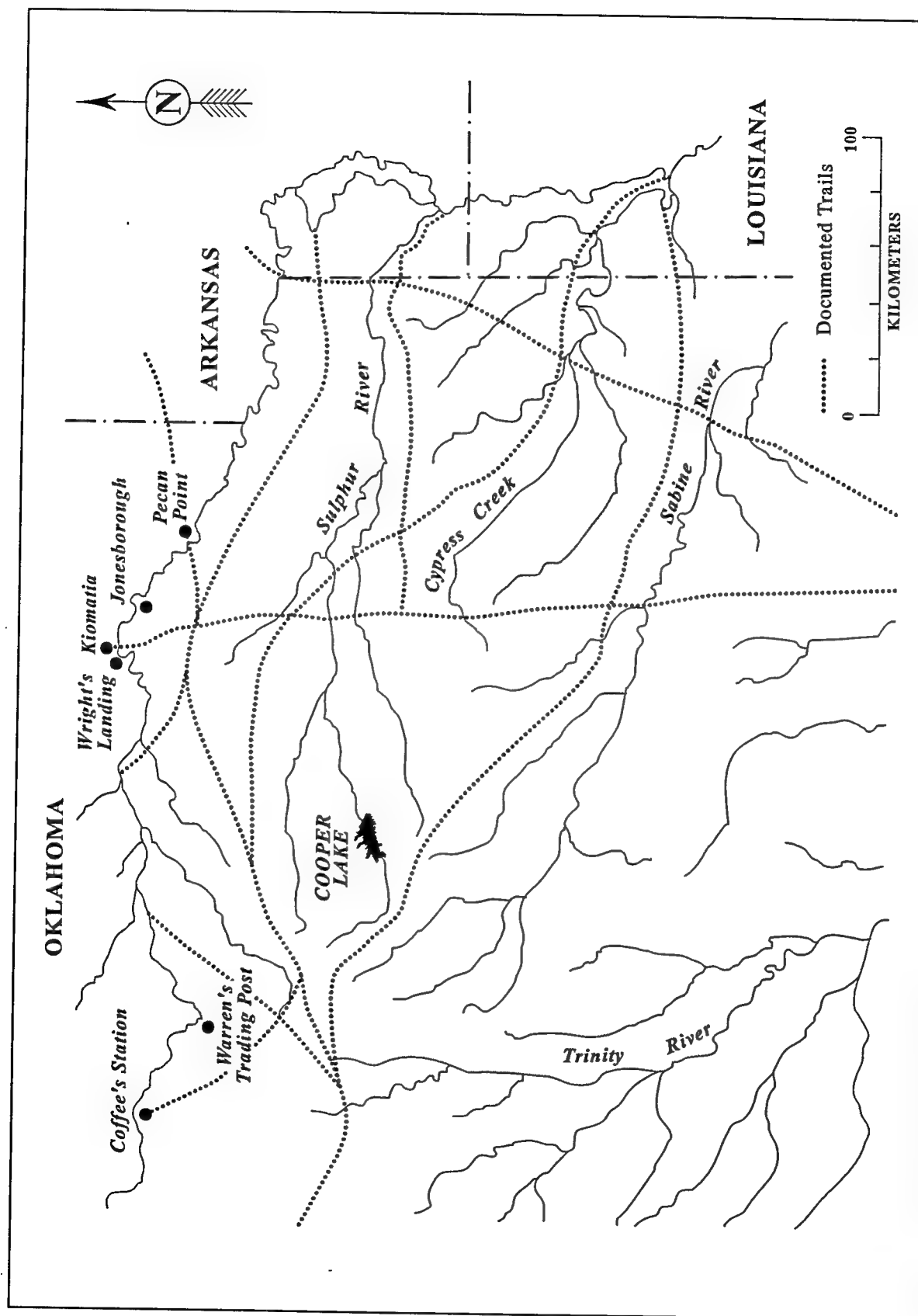


Figure 1-7. Historically documented trails, trading posts, and Native American villages in northeast Texas (after Flores 1985 and Texas Sesquicentennial Press 1986).

the Main Caddo Trace was located ca. 11 km (7 mi) south of Sulphur Springs in Hopkins County.

ANGLO-, AFRICAN- AND EURO-AMERICAN SETTLEMENT OF NORTHEASTERN TEXAS

In comparison to most other parts of the continental United States, northeastern Texas was settled fairly late by Anglo-Americans and European emigrants. These settlers entered this area late in the second quarter of the nineteenth century as a natural extension of westward migrations from Louisiana and Arkansas and from initial settlements along the Red River (Figure 1-8). Northeastern Texas began receiving new settlers several years after Texas obtained its independence from Mexico in 1836.

At the time of Texas' annexation by the United States in 1845, the population of Texas was estimated between 125,000 to 150,000 residents. The first U.S. Census for Texas enumerated 212,592 individuals in 1850. Anglo-American settlements had pushed the frontier westward 350 km (186 mi) from Louisiana and Arkansas to about 97.5° longitude north of Austin, doubling the area settled in Texas in 14 years. (i.e., 1836 to 1850; Figure 1-9).

The distribution of early land surveys around the project area offers an overview of the major phases of land speculation for the area. With Native American removal, land surveying intensified with most early land grants dating from 1838 to 1847. The first surveys in the project area were laid out in the late 1840s and were located along the Sulphur River. Major land speculation began to increase in the 1850s and preceded most settlers by several years. Although most land had been granted by the Civil War, some stray tracts were surveyed as late as the 1870s. A total of 15 surveyors provided the GLO data (61 tracts) compiled for Cooper Lake Embankment area. Of these, 36% were surveyed between 1838 to 1842, 15% between 1845 to 1848, 36% between 1850 to 1862, and 13% between 1866 to 1889.

The Cooper Reservoir is located in what was originally Red River, then Lamar County, and which was settled by immigrants from Tennessee, Kentucky, the Carolinas, and Virginia (Rice and Smith 1908:6). Hopkins County was created from portions of Red River and Nacogdoches Counties in 1846 (Figure 1-9), and Delta was created from portions of Hopkins and Lamar Counties in 1870 (Doehner et al. 1978:14).

Figure 1-10 illustrates the early roads and community pattern of Delta County from the 1840s to 1876. The Centennial Brochure (on file Delta County Library) published this map. An article entitled "Hunt brought first Pioneers," stated that two settlers, George Nidever and

Alex Sinclair came to the area on a buffalo hunt in 1820. They returned in the 1840s and were granted land tracts in the project area.

The earliest trails to Cooper shown on Figures 1-8 and 1-10 were the northeast-southwest trending Chihuahuah Trail in the northwest corner of the county, and the north-south Jefferson to Bonham Trail through the project area. This crossing on the South Fork Sulphur was known as DeSpains bridge in 1845. Harper's toll bridge was in place by 1865. Thus one major land transportation route through the region passed through the center of the proposed reservoir. Later roads followed property divisions (north-south or east-west) rather than the early trails.

As mentioned above, the Cooper area was settled by historic households emigrating from the greater Southeast and Midwest. More specifically, when one reconstructs the largest modal group based on birthplace for mid to late nineteenth century Delta and Hopkins counties, one finds a split or division by County that separates north from south following the Sulphur River drainage. This division is based on modal birthplace of household using census records and has been found by some cultural geographers and archaeologists to be useful for separating some types of traditional farmsteads. Jordan (1970, 1978, 1982) for example, has offered some broad models of ethnic settlements and their associated cultural practices, such as architectural styles, mortuary motifs, and other traditions.

Based upon Jordan's map (1970), northeastern Texas is divided into two modal groups that he defines as: Upper South and Lower South (Figure 1-11). The Cooper project area in specific, nearly straddles this hypothetical boundary between households emigrating from Tennessee (settling in Delta County) and other households from Alabama (settling in Hopkins County). This designation by Jordan (1970), offers an excellent cultural ecological framework for Cooper Lake historical research.

The concepts of Lower South and Upper South have been in common use over the last several decades by anthropologists, historians, and geographers. The Lower South, also labeled the Deep South, is made up of the Coastal Plain portions of Florida, Alabama, Georgia, and Mississippi, and extends into southeast Texas (Kniffen 1965; Kniffen and Glassie 1966; Glassie 1965, 1968). The Upper South consists of Piedmont and mountainous portions of states paralleling the Coastal Plain.

Based on SMU's two most recent large reservoir studies (i.e., Joe Pool Lake and Richland Chambers Reservoir) the Cooper Lake project area should reveal some affinities to both the Upper and Lower South (Jurney and Moir 1987; Moir and Jurney 1987; Jurney

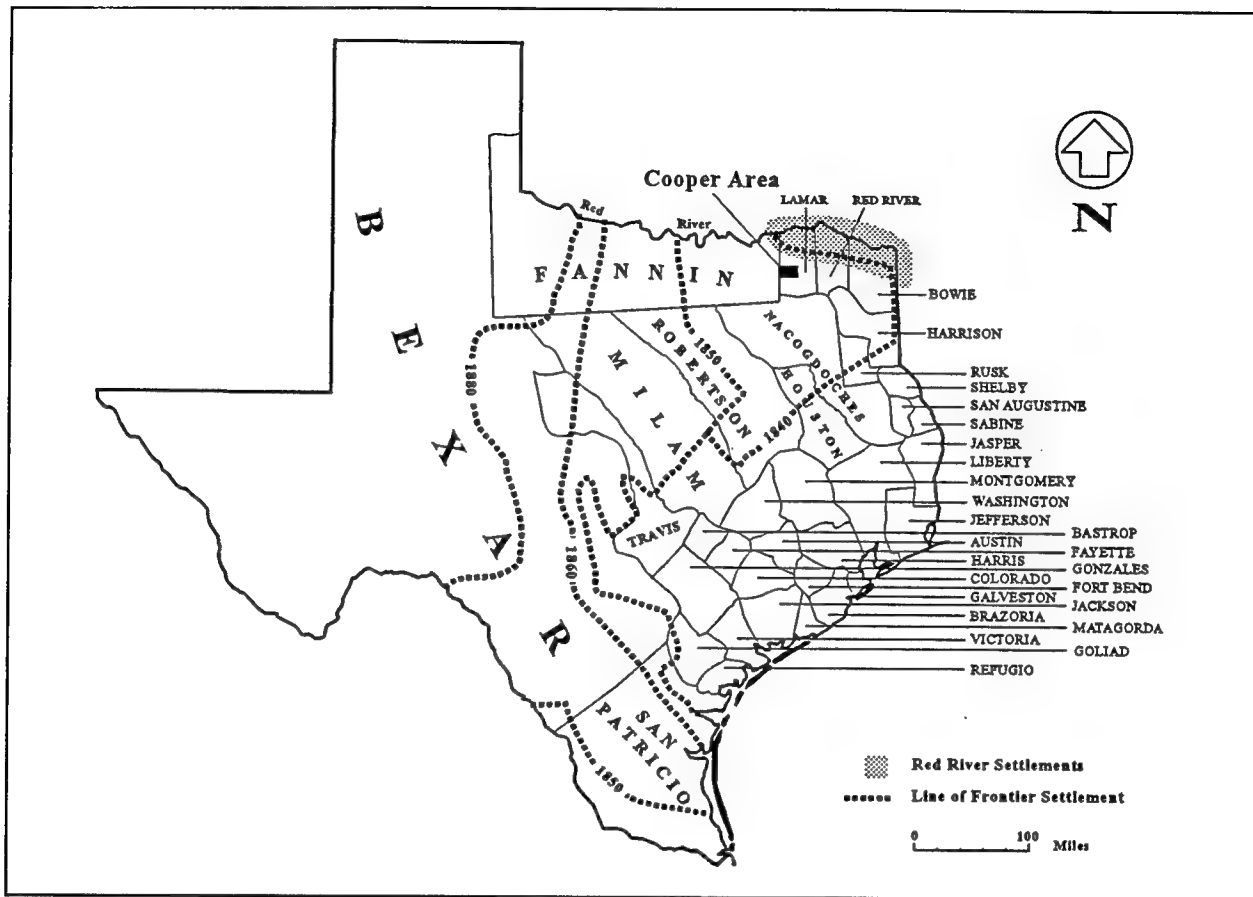


Figure 1-8. Westward progression of nineteenth century Anglo-American and European settlements in Texas. In northeast Texas the Red River settlements began ca. 1830.

et al. 1988). For example, storm/root cellars were found to be nearly absent among Richland Creek farmsteads (mostly natives from Alabama and similar Lower South states), whereas in Joe Pool Lake storm/root cellars were pervasive. Consequently, we would predict that Delta and Hopkins counties would yield a percentage for storm/root cellar features falling somewhere in the middle. Differences in farmstead organization and agricultural practices would also be expected along these lines. Upper South families would be less dominated by cotton agriculture and more diversified in their farming. In the twentieth century, many Upper South farmers relied heavily on dairying for making their living. Saunders (1978) noted this important difference between Delta and Hopkins counties and recognized the inverse relationship between cotton and dairy production.

The historic occupations in Hopkins County may more closely approximate Richland Creek occupation due to their similarities in forested uplands and less extensive prairie areas. Consequently, large landowners should be

few and most sites within the sections of the North Sulphur River basin are hypothesized to represent 1880-1930 cotton tenant farmers. Yard sizes south of the South Sulphur are expected to be smaller than Joe Pool Lake farmsteads; and outbuilding numbers, types, and sizes will also be comparatively simple. Cisterns will outnumber wells and braced frame outbuildings will be considerably less frequent. Yard sweeping will be more common and ceramic vessel assemblages less decorative. Stonewares will contain a higher percentage of traditional southern alkaline wares, and stonewares will be more plentiful.

Differences between Delta and Hopkins counties will reveal the underlying subtle differences found in the origin of each rural population. Hopkins County is hypothesized to remain essentially Lower South in affiliation and Delta will probably reveal more correlations to the Upper South than previously recognized. Stonework and brickwork on wells/cisterns, fireplaces, and foundations will be found more frequently

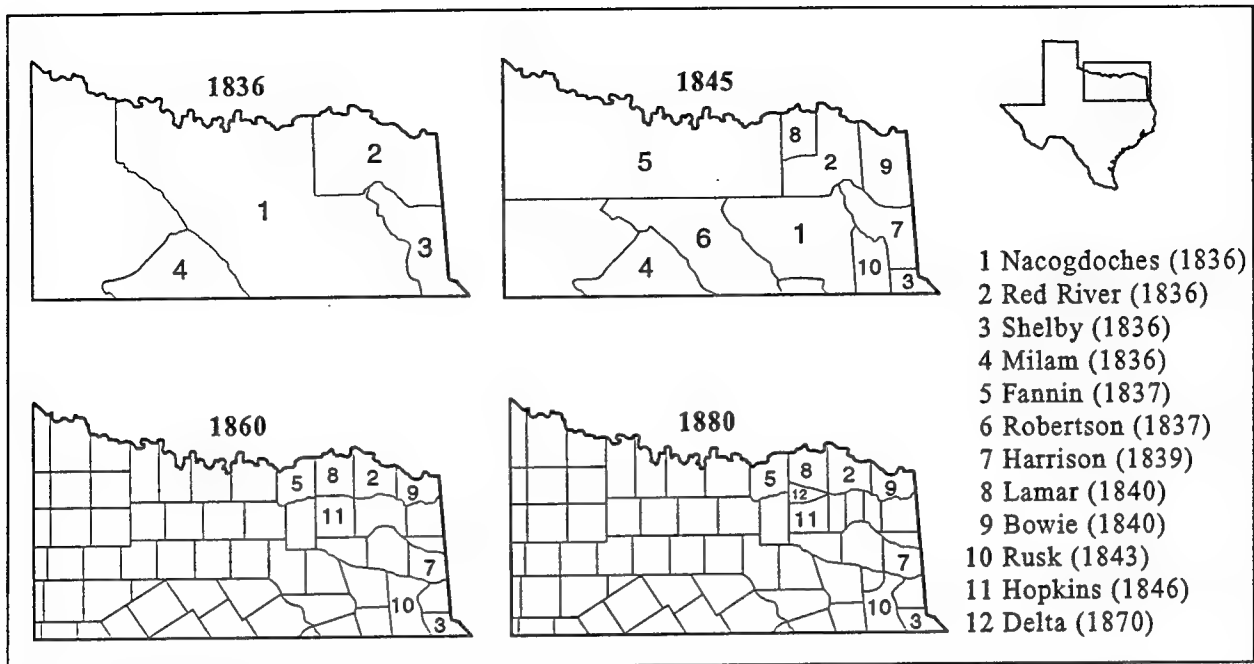


Figure 1-9. Evolution of counties in northeastern Texas from 1836 to 1880. The Cooper area was initially in Red River County (1836-1843), then subsequently Lamar County (1843-1846); Lamar and Hopkins counties (1846-1870); and Delta County (1870-present).

with Delta County residents than those residents of Hopkins County.

These hypotheses were some of the original questions SMU formulated for Cooper Lake research in 1986. Although detailed studies to date have been limited to the embankment so far, Cooper Lake offers historical archaeologists an opportunity to study a dynamic cultural subregion drawing from Upper and Lower South culture. Hopefully, these differences will be discernable in the material culture record. Additional census data may help to refine the birth origins of the particular populations within the immediate project area.

COTTON FARMING

Cotton farming represents an important agricultural orientation within the general Cooper Project area, and typifies the agricultural interest and focus of the Southern farmer. Cotton farming became inextricably interwoven in many regions of Texas, and especially in the blackland prairies running through Dallas toward Delta and Hopkins counties. So deeply ingrained, cotton in the late nineteenth century influenced the growth of towns, the location of railroads, and even the social and economic relationships of landowners and tenants.

Cotton farming, as a major agricultural enterprise, was established comparatively late in Texas. In 1839, the U.S. produced about 1.6 million bales of cotton weighing ca. 227 kg (500 lb) each (Agelasto et al. 1922:331). Five states—Alabama, Mississippi, Georgia, Louisiana, and South Carolina—were responsible for 87% of the bales. Texas' cotton crop was nearly nonexistent (Bizzell 1924:157-8). In the next 20 years, the situation changed dramatically.

In 1859, on the eve of the American Civil War, Texas' cotton production ranked fifth in the nation with Mississippi, Alabama, Louisiana, and Georgia the only large producers. Nevertheless, these top four states accounted for 67% of the nation's 4.3 million bales (Agelasto et al. 1922:331). Consequently, for the antebellum period, Texas was not a formidable agricultural competitor among cotton growers in the South. The Civil War set cotton agriculture and the economy of the South, including Texas, back more than a decade. Production did not surpass the 1859 mark until 1875. By 1879, Texas produced one-seventh of the 5.7 million cotton bales in the U.S., and was the largest single producer of all states (Figure 1-12). Mississippi and Georgia, the next two largest producers of cotton, yielded a combined bale count that was less than the total for

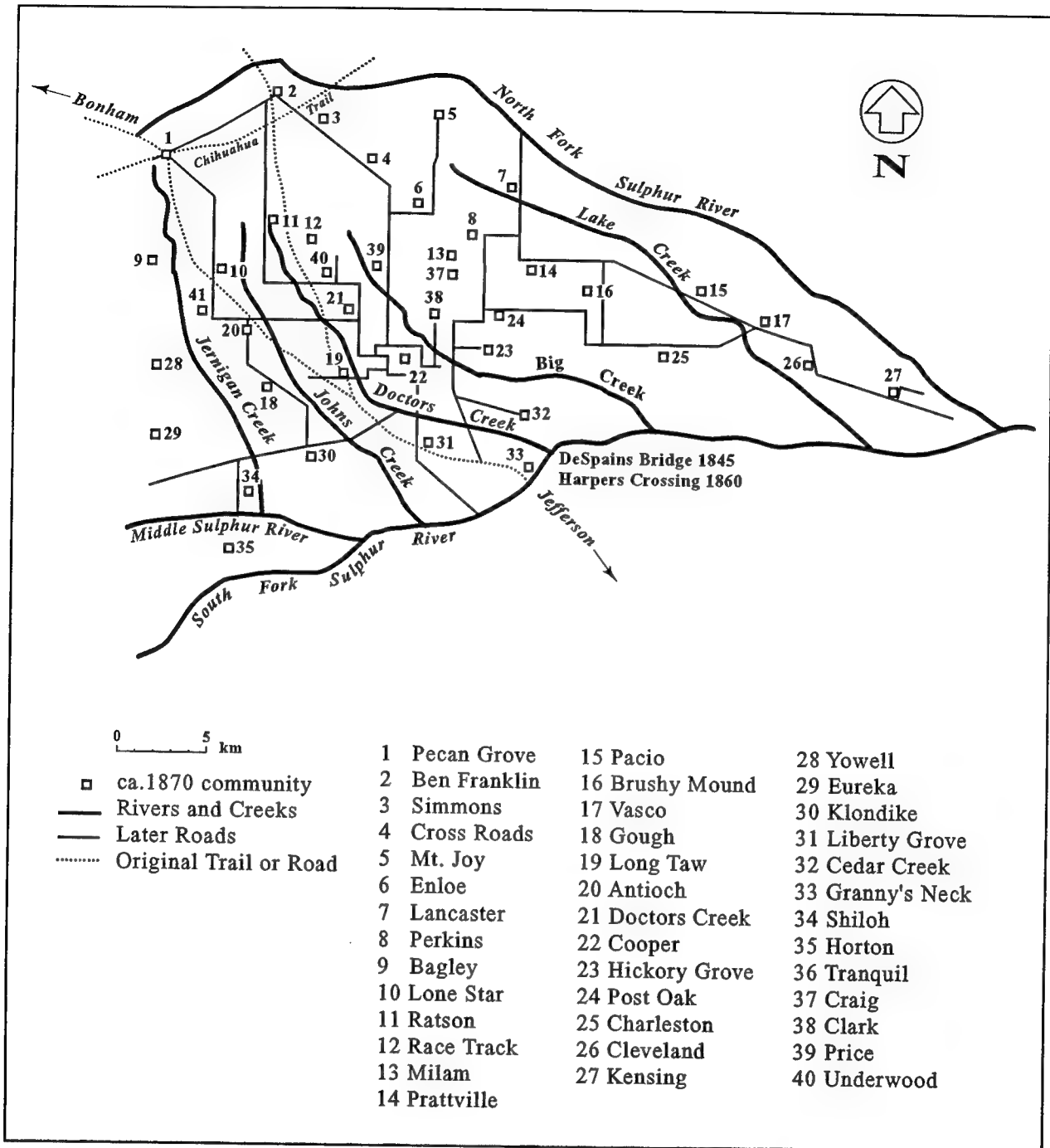


Figure 1-10. Initial land divisions and waves of settlement in northeast Texas.

Texas. For the remainder of the nineteenth and into the twentieth century, Texas was the largest producer of cotton in the U.S., and it also out-produced every other country in the world before the boll weevil significantly reduced its yields in the second quarter of the twentieth century.

Texas, of course, is the largest of the contiguous U.S. states, and for Texas to out-produce any other state in cotton bales may be expected. Cotton production within Texas, however, was not uniformly distributed, but was heavily concentrated in the blackland prairies. These prairies of fertile black clays and clay loams ran slightly

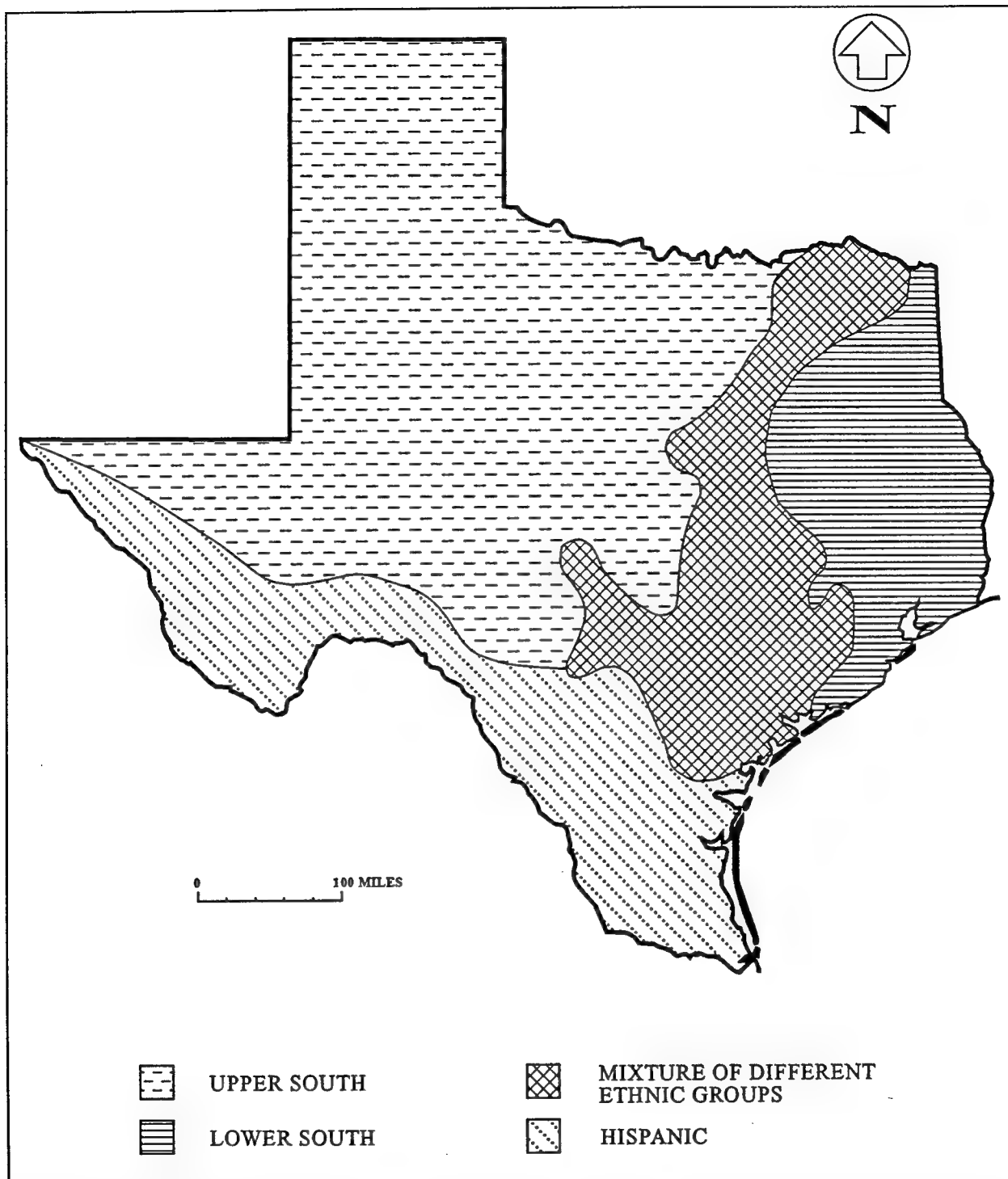
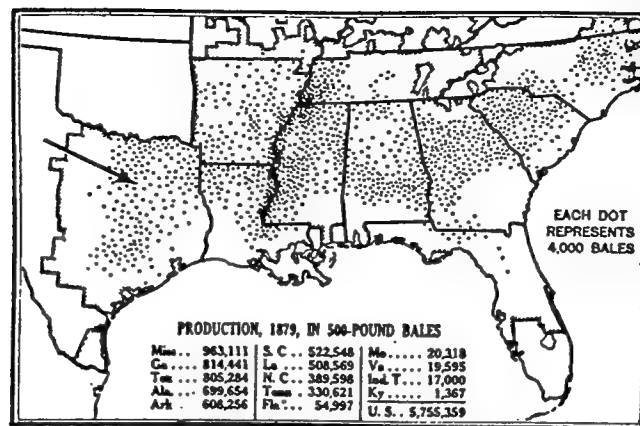
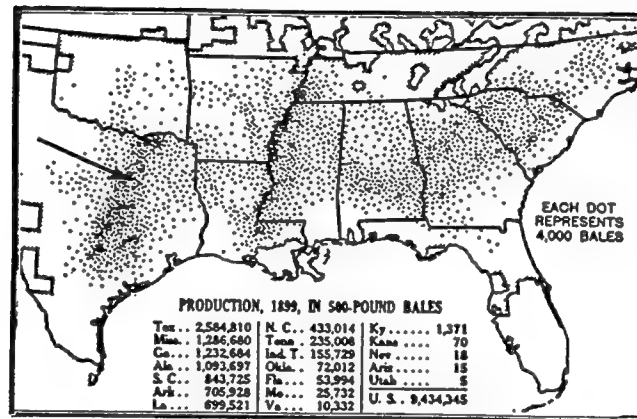


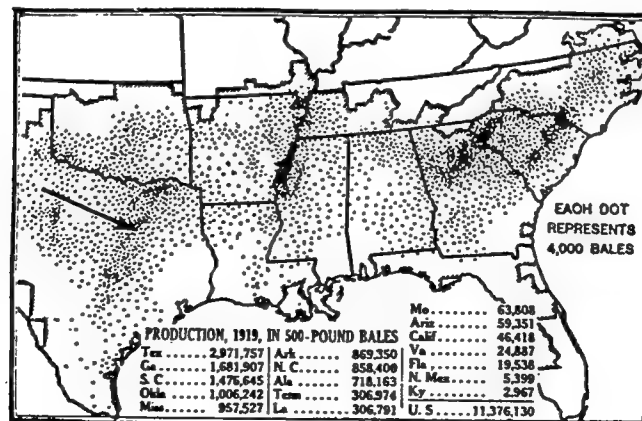
Figure 1-11. Cultural traditions for rural mid-nineteenth century populations in Texas based upon their primary place of origin. Most Texas families emigrated from the southeastern United States (after Jordan, Bean, and Holmes 1984:75).



A. Cotton in 1879



B. Cotton in 1899



C. Cotton in 1919

Figure 1-12. Production of cotton in the south for 1879, 1899, and 1919. Starting in the 1880's, Texas produced more cotton than any other southern state. Figures adopted from Agelasto et al. (1922:332).

skewed to the northeast from San Antonio to Austin, Waco, Dallas, through the Cooper Lake area and then stopped in southern Oklahoma. This comparatively narrow band of about 30 counties represented less than 20% of Texas area yet was responsible for over 50% of the annual cotton production (Belo 1969:386-389; Bizzell 1924:159).

It was in this band of counties that the tenant farmer population first grew in large numbers in the postbellum period to become the dominant class of farmers in all of Texas after 1900 (Belo 1969:400-401). Only five other states surpassed Texas in the early twentieth century (Figure 1-13) in their percentage of tenant operated farms (Mississippi, Georgia, Alabama, South Carolina, and Louisiana). In terms of total numbers of tenant farmers, Texas surpassed all (Bizzell 1921; Tumer 1936).

Cotton agriculture and tenant farming were synonymous in the South after the Civil War. Tenant farmers, whether croppers, renters, or otherwise, became a major rural socioeconomic constituency in the cotton belt. Texas followed the lead of other cotton states and tenancy increased greatly during the 1880s. In northeastern Texas in 1890, one-third of the counties located along the fertile blackland prairies had more tenant operated than owner operated farms (Tumer 1936:12-13). By 1900, in nearly all these counties, tenants outnumbered owners. These trends intensified as cotton farmers faced diminished yields due to the boll

weevil, soil exhaustion, bad growing seasons, and finally the Great Depression. In 1930, the tenancy rate among cotton farmers reached 75%, twice as high as the tenancy rate for farms not associated with cotton (Tumer 1936:2). Wherever cotton farming had been a primary agricultural focus, rural communities were reduced and hundreds of thousands of people were displaced as families searched for comparable opportunities elsewhere. Many packed up their belongings and eventually worked their way westward to field jobs in California. Tenant farming was both an economic and a social institution in the late nineteenth and early twentieth centuries.

The roots of some of the lifeways practiced by tenant farmers, like yeoman farmers and plantationers, go back into the early seventeenth century. But, for the most part, cotton production did not greatly expand until the nineteenth century and some forms of tenancy did not become widespread until the postbellum era. The rise of tenant farming in Northeastern Texas, as partly examined through ethnoarchaeological study of a section of Navarro County (Jurney and Moir 1987) 100 km (62 mi) southeast of Dallas, provides a detailed picture of a segment of this institution in the black waxy (i.e., Blackland Prairie) of Texas. Since 1940, tenant farming has been greatly reduced and sharecropping has nearly disappeared. The technological revolutions in agriculture and rural living since World War II have erased many of the older practices and lifeways that were once common.

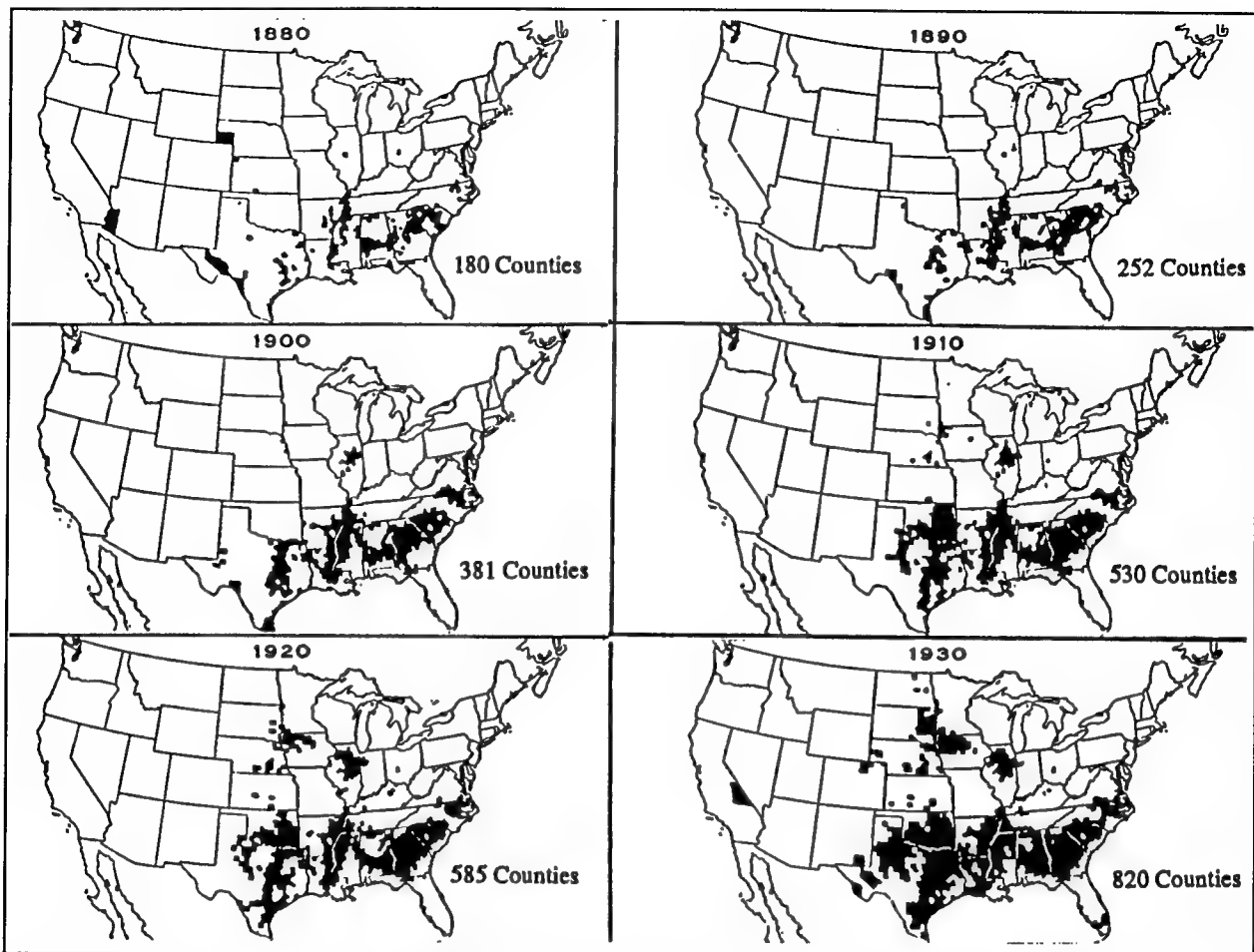


Figure 1-13. Counties containing at least half of their farms operated by tenants or sharecroppers are shaded black. The cotton dominated Blackland Prairie of Texas shows as a band running nearly north-south. The Cooper area surpassed the 50% mark in the 1890s (adapted from Turner 1936).

SURVEY AND TESTING METHODOLOGY

Daniel E. McGregor and David H. Journey

2

SURVEY METHODS

The area surveyed by SMU in 1987 encompassed 1902.8 ha (4700 ac) surrounding the dam embankment. An unknown portion of this area had been surveyed in 1970 (Hyatt and Skinner 1971), and 11 prehistoric sites had been recorded within this same area. Because of the earlier survey and the time constraints imposed by the construction schedule, an intensive survey of all 1902.8 ha (4700 ac) was not required. Contract specifications (Delivery Order 2, Contract DACW-63-87-D-0017) required the development of a plan that included intensive survey of areas with high potential for prehistoric sites and less intensive survey of areas with low potential. Areas with high potential include relict terraces, upland ridge promontories, and topographical settings which had yielded sites during earlier surveys, but which had little subsurface investigation.

Also required were methods to address the historic sites in the survey area. Historic sites were not systematically recorded in the 1970 survey, but recent investigations within the dam axis by North Texas State University had shown that significant historic sites are present (Perttula 1988). A variety of methods were used to identify and assess historic sites. These ranged from pedestrian surveys to the relocation of dwellings and farmsteads using early maps, deed records, and local informants.

The project area was divided into zones that made a distinction between areas of modern floodplain, relict terraces, and upland landforms. Recent geomorphological investigations at Cooper Lake (Bousman, Collins, and Perttula 1986) demonstrated that substantial amounts of recent alluvia cover the floodplains of the survey area. This made a traditional pedestrian survey impractical in lowlying areas. Archaeological sites in floodplain contexts were expected to be buried deeply within these alluvial sediments. As a result, an alternative survey strategy was developed to deal with ca. 290 ha (2200 ac) of floodplain (i.e., low potential archaeological zones) included within the survey area. This was accomplished by creek bank survey and examination of all topographic promontories in the floodplain of the project area. An examination of topographic maps resulted in the designation of the remaining 1012 ha (2500 ac) (high potential archaeological zones) as upland, Pleistocene terrace, or terrace remnant landforms. An intensive, on-the-ground pedestrian survey was conducted for this portion of the study area. Survey crews consisting of four members covered individual parcels of land by walking parallel, compass-oriented transects spaced no more than 20 m (65.6 ft) apart. In areas where vegetation obscured the ground surface or reduced the visibility, shovel tests were dug at intervals of 30 m (98.4 ft), or less when merited, along each survey transect. The fill from these shovel tests was not screened, but was hand troweled in

search of artifacts. Units ranged in depth from 10-60 cm (3.9-23.6 in) below surface, but were usually 25-35 cm (9.8-13.8 in) in depth.

To provide a check on the effectiveness of this survey approach, a small sample of the total upland/terrace area was subjected to more systematic and intensive shovel testing. Particular tracts that were considered to have a high potential to contain archaeological sites were selected for this treatment. Compass-oriented transects again were employed, with shovel tests located at 20 m (65.6 ft) intervals along these regardless of surface exposure conditions. The fill from these shovel tests was sifted through 6.4 mm (0.25 in) mesh, portable screens. Although these transects initially were spaced at 20 m (65.6 ft) intervals, time constraints forced us to use 40 m (131.2 ft) interval spacing between transects for some of the tracts. However, the 20 m (65.6 ft) interval placement of shovel tests along the transects was still maintained.

A primary variable in the selection of testing areas was their associated soil types. Preliminary survey results revealed that the locations of prehistoric sites correlated well with the distribution of certain loam and sandy loam soils. Ten separate tracts mapped as loam or sandy loam were selected for intensive shovel testing (Figure 2-1); and were expected to contain previously undiscovered sites. Three additional prehistoric sites (41DT114, 41DT127, and 41DT134) were located and recorded during the course of this intensive shovel testing task.

The 890.3 ha (2200 ac) floodplain study area presented a special set of problems for survey. Geoarchaeological studies (Bousman, Collins, and Perttula 1986) indicated that recent alluvial deposition had buried sites too deeply to be discovered with shovel tests. The search for buried archaeological sites in the floodplain concentrated on the inspection of creek and river channel cuts, but also included a limited program of backhoe trenching along an older, abandoned channel of the South Sulphur River.

The channel survey included ca. 12.89 km (8 mi) of the South Sulphur River and its two main tributaries, Doctors Creek and Moore Creek. A four person crew walked both banks of these drainages for those portions that were included in the survey area. The crew entered the channels to examine the surface in all places where erosion (i.e., active meander cutting) had exposed the sediments that formed the channel walls. A channel survey of this type had been used successfully at Richland/ Chambers Reservoir (Archaeology Research Program 1982), where numerous buried Holocene alluvial sites were identified. This survey technique has

been considerably less productive at Cooper Lake, yielding only seven sites with limited research potential.

A total of nine backhoe trenches were excavated in three separate locations adjacent to a former channel of the South Sulphur River (Figure 2-1). The depths were generally 1.7 m (5 ft) to meet excavation standards mandated by the Corps. This was the same abandoned channel along which a buried site (41HP118) had been discovered during NTSU's survey of the dam centerline (Perttula 1988). The channel had been partially filled with recent sediments that would have buried any evidence of archaeological site deposits. This lack of exposure necessitated the use of the backhoe in the search for sites associated with this abandoned channel.

A stratigraphic profile was described and sketched for each backhoe trench, and the trench walls were inspected for artifacts. Despite these efforts, no buried archaeological deposits were identified in any of these trenches. A buried soil similar to the one that contained prehistoric artifacts at site 41HP118 was recorded in almost all of the backhoe trenches. It varied between 50 cm (19.69 in) and 150 cm (59.06 in) in depth below the modern floodplain surface. A soil humate sample collected from this buried soil during test excavations at 41HP118 yielded a date of 1220 B.C. \pm 70 yrs (SMU 1970, corrected).

The final task for the survey phase was the relocation of 11 archaeological sites that were originally recorded by SMU in the 1970s. Varying levels of investigations were conducted at these sites and the current task was to evaluate them in terms of their potential for further research and eligibility for nomination to the National Register. The recording and limited testing of these sites followed essentially the same procedures that are outlined below for sites discovered during the 1987 survey, with two exceptions. Site 41DT82 could not be relocated despite repeated efforts. Another, the Lawson site (41HP78), recently had been evaluated by NTSU (Perttula 1988) and was recommended for expanded test excavations. Further investigations of the Lawson site were carried out later in the 1987 field season by SMU under the terms of Delivery Order 3.

SITE IDENTIFICATION AND RECORDING

When any physical evidence of past human behavior was identified during the course of the survey, a standard procedure was followed in defining and recording the site. Only those sites which could be definitely dated to greater than 50 years old were evaluated and given state trinomials. Recent and deflated sites received

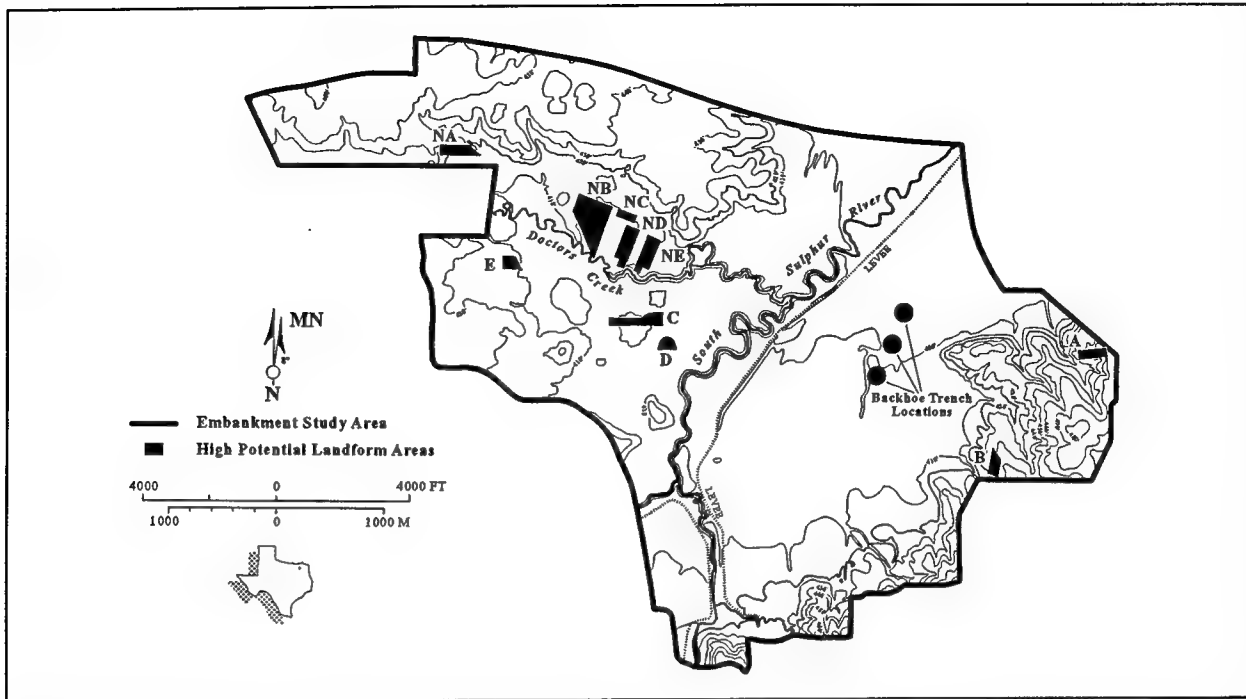


Figure 2-1. Distribution of high potential landforms along an abandoned channel of the South Sulphur River at Cooper Lake. NA through NE refers to areas North of Doctors Creek. A through E refers to areas south of Doctors Creek.

temporary designations to allow for the examination of their ages. The site area was inspected initially so that the horizontal limits of surface materials could be determined. After a permanent site datum was established, shovel testing was conducted to obtain an initial reading of site depth, horizontal limits, and artifact content. These shovel tests were placed at regular intervals (10 m [32.8 ft] depending on landform in each of the four cardinal directions from the site datum. The fill from these shovel tests was not screened, but was hand troweled. The artifacts recovered from each shovel test were recorded on the survey form, and all temporally diagnostic artifacts were collected.

Deviations from this standard procedure were necessary in certain instances. In particular, shovel testing was not applied as systematically at sites located within the channel of the South Sulphur River. While it was possible to shovel test within the channel itself, the depth of sediments made it impossible to extend this testing farther back into the river banks.

For every recorded site, a sketch map was made, showing the locations of the site datum and all shovel tests. Also shown were any distinct topographic or cultural features, areas of disturbance, and the distribution of surface artifacts.

A major part of recording each site older than 50 years was the completion of the site survey form. The State of Texas Archaeological Site Data Form was used as the standard form to record information for each site. A photographic record was also kept for the entire survey, and contains both color slides and black-and-white photographs depicting the general environment and survey conditions, as well as two or more views of each recorded site. Site locations were plotted on the appropriate United States Geologic Survey (USGS) 7.5' topographic map and on the 1 in = 200 ft (2 ft contour) maps supplied by the Corps.

LIMITED TESTING

Limited test excavations beyond shovel tests were required at sites where additional data were necessary for evaluating their research potential and assessing project impacts. For a variety of reasons, primarily recent age, some sites could be eliminated from consideration for further work on the basis of the data collected during their initial identification and recording. These excavations were conducted at most of the prehistoric sites (32 of 44), and at 26 historic period sites. The terms of Delivery Order No. 2 required excavation of at least

six 50 x 50 cm (19.69 x 19.69 in) units or their areal equivalent per site. The amount of testing actually performed was often significantly greater than this minimum, depending upon the size and complexity of the site (Table 2-1).

The objective of the limited test excavations was to obtain better controlled data about site limits, artifact content, and intrasite artifact distributions. This level of testing was done using 50 x 50 cm (19.69 x 19.69 in) units; screening all fill through 6.4 mm (0.25 in) mesh hardware cloth. In some cases, 30 x 30 cm (11.8 in x 11.8 in) and 50 x 50 cm (19.69 x 19.69 in) units were excavated in a single level and vertical control was limited to observations recorded on the Unit/Level forms. When 1 x 1 m (39.7 x 39.7 in) units were used, they were excavated in 10 cm (3.9 in) vertical levels.

Following the Delivery Order No. 2 test excavations, additional testing was undertaken at other prehistoric sites. Three of these sites had been tested briefly by NTSU (Perttula 1988), and additional work was recommended. The test excavations at 41HP78, 41HP116, and 41HP118 were carried out under the terms

of Delivery Order No. 3. Specifications for this work required a maximum of two backhoe trenches and three 1 x 1 m (39.7 x 39.7 in) units (or equivalent effort) at sites 41HP116 and 41HP118. At 41HP78, one backhoe trench and two 1 x 1 m (39.7 x 39.7 in) units (or equivalent effort) were recommended and were exceeded for each of the three rises identified during previous investigations (see Chapter 9).

What amounted to a phase of expanded test excavations was undertaken to further evaluate a group of five prehistoric sites. On the basis of our limited testing these five sites (41DT111, 41DT127, 41HP136, 41HP137, and 41HP138) were thought to represent potentially important, single-component sites. The expanded testing was conducted under Delivery Order No. 4 essentially to determine which of these was the best candidate for mitigation excavations. These test excavations consisted primarily of 50 x 50 cm (19.69 x 19.69 in) units on a systematic grid, but additional 1 x 1 m (39.7 x 39.7 in) units were also included at 41DT127 and 41HP136. One of these five sites (41HP137) eventually was selected for expanded excavations.

TABLE 2-1

Level of Site Testing Accomplished Under Delivery Order Number 2

Prehistoric Sites						Historic Sites				
TARL #	Previous Designation	Shovel Tests	30x30 (cm)	50x50 (cm)	1x1 (m)	TARL #	Previous Designation	Shovel Tests	30x30 (cm)	50x50 (cm)
41DT34	X41DT16	15	—	6	—	41DT107	T122	—	—	12
41DT67	X41DT53	4	—	2	2	41DT113	5MG	10	—	16
41DT68	X41DT54	100	—	3	—	41DT115	T113	15	22	—
41DT71	X41DT57	11	—	4	—	41DT118	27MG	10	20	—
41DT80	X41DT68	10	—	2	2	41DT119	29MG	10	19	—
41DT81	X41DT69/T102	10	—	11	—	41DT120	30MG	—	—	2
41DT83	X41DT71	30	2	2	—	41DT121	37MG	—	5	8
41DT106	T101	10	—	8	—	41DT122	T112	5	26	—
41DT108	T103	15	—	7	—	41DT123	T115	5	18	—
41DT109	T105	20	—	6	—	41DT125	T120	12	19	1
41DT110	T116	20	—	6	—	41DT126	T124	—	20	—
41DT111	T118	20	—	22	—	41DT135	1MG	11	26	—
41DT112	T125	10	—	7	—	41DT136	20MG	4	16	—
41DT113	5MG	10	—	16	—	41DT137	13MG	—	17	—
41DT114	34MG	13	—	6	—	41DT138	4MG	3	21	—
41DT115	T113	15	—	11	3	41DT139	3MG	5	17	—
41DT116	T126	15	—	8	—	41DT140	T108	5	17	—
41DT117	T127	25	—	7	—	41HP105	T26	—	30	—
41DT124	T119	20	—	20	—	41HP141	T23	—	20	—
41DT127	32MG	11	—	6	7	41HP142	T25	2	10	—
41DT128	T128	25	—	20	—	41HP143	T20	—	23	—
41DT129	T32	—	—	—	—	41HP144	T13	—	—	—
41DT130	T29	—	—	—	—	41HP145	T14	—	19	—
41DT131	T28	—	—	—	—	41HP146	T8	10	31	—
41DT132	T35	3	—	—	—	41HP151	T1	10	13	—
41DT133	6MG	6	—	6	—	41HP152E	T2E	—	13	—
41DT134	35MG	9	—	5	—	41HP152W	T2W	—	32	—
41HP6	T33	6	—	—	—	41HP153	T24	—	17	—
41HP104	X41HP36	—	11	—	—					
41HP105	X41HP37	—	30	—	—					
41HP116	C15	—	—	—	2					
41HP118	C25	—	—	—	2					
41HP134	T3	5	—	—	—					
41HP135	T12	12	—	6	—					
41HP136	T15	11	—	5	3					
41HP137	T16	11	—	5	4					
41HP138	T17	13	—	7	4					
41HP139	T18	9	—	—	—					
41HP140	T22	11	—	—	—					
41HP147	T34	6	—	—	—					
41HP148	T36	—	—	—	—					
41HP149	T30	—	—	—	—					
41HP150	T31	1	—	—	—					

SITE DESCRIPTIONS OF TESTED PREHISTORIC SITES

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with contributions by Timothy K. Perttula

3

This chapter presents the results of archaeological investigations of prehistoric sites conducted by SMU in the dam easement and borrow pit area of the Cooper Lake project. Some of these sites were also visited by NTSU, under its contract with the Corps for Cooper Lake. The level of work conducted is primarily limited to evaluation of the importance of each property under the draft and final versions of the Cooper Lake research design (Moir et al. 1987, Moir and Jurney 1987).

DELTA COUNTY SITES

41DT34

This site was first recorded by SMU surveyors in 1970 as site X41DT16 (Hyatt and Skinner 1971), and was later assigned the state trinomial 41DT34. Tasks required under Delivery Order 2 were to relocate and re-evaluate all previously recorded sites. However, once the 1987 survey was under way, it became clear that site X41DT16 had been improperly mapped. Nothing was found in the vicinity of the location shown on the map. In addition, information regarding the nature of previous site investigations had been poorly documented, making it difficult to determine if this previously recorded site was one of the sites recorded during the 1987 survey.

Other previously recorded sites (41DT80 and 41DT81) had also been improperly plotted, but late in the

1987 field season they were positively identified and their locations were properly mapped. Originally, their locations had been plotted too far to the west, so site 41DT34 was replotted by shifting its location to the east, while maintaining its relative spatial relationships to these other misplotted sites. The results of this procedure suggested that one of the newly recorded sites, labeled T100, was most likely site 41DT34.

The sketch map provided with the original site form was very crude, but the few details shown matched the configuration observed at T100. In addition, old photographs taken during the original survey seemed to match the landscape at T100. However, two major discrepancies were noted between 41DT34 and T100. First, the original site form stated that the site was ca. 400 m (1312 ft) from the river, whereas T100 was only about 10 m (32.8 ft) from the river. Secondly, quite a bit of material was collected from the dozer cut along the east edge of the site in 1970, but only a few flakes were encountered in test units dug west of this cut in 1987. The dozer cut was fresh in 1970, but has since filled with water, becoming what is essentially a man-made slough that cannot be examined for cultural materials. Therefore, it was impossible to judge whether or not this was the same dozer cut collected in 1970. Based on the similarities observed in the available information, T100 was considered to be site 41DT34, but some doubt concerning this determination still exists.

Site 41DT34 was located in the forest along the edge of a low Pleistocene terrace with a very gradual slope that rose about a meter above the floodplain at its highest point. The floodplain was roughly 402 ft (122.5 m) amsl and the site was 123.7 m (406 ft) amsl. The South Sulphur River was about 10 m (32.8 ft) southeast of the site, with the water-filled dozer cut about 5 m (16.4 ft) to the east (Figure 3-1). The site was situated about 1 km (0.62 mi) northeast of Harper's Crossing, adjacent to a floodplain clearing on Ode Thomas' old ranch which is used as a dump. The soil type is mapped as Annona loam (Ressel 1979). The site size listed on the 1970 site form stated that the diameter was 25 m (82 ft), but the results of test excavations indicated that an estimate of 20 x 12 m (65.6 x 39.4 ft) was more accurate.

In 1970, SMU conducted surface collections within the dozer cut and obtained 71 flakes, 131 chips, three cores, one dart point, one dart point preform, one biface, five arrow points, nine retouched pieces, two pieces of fire-cracked rock, and five sherds. During the 1987 work, an old 1 x 1 m (3.28 x 3.28 ft) unit with corners marked by wooden stakes was observed along the edge of the terrace closest to the river. No mention of an excavation unit was listed on the original site form, but it is possible that local collectors conducted the excavation, since the original site form listed several local residents and the Boy Scouts among those who had collected the site.

Subsurface investigations during the 1987 survey included shovel tests spaced at 10-15 m (32.8-49.2 ft) intervals. Approximately 15 shovel tests were dug across the knoll. One shovel test located near the 1 x 1 m (3.28 x 3.28 ft) unit yielded a few flakes, but others were empty. The presence of flakes and an old excavation unit suggested that the knoll was worthy of testing, so six 50 x 50 cm (19.68 x 19.68 in) units were excavated across the knoll (Figure 3-1). Site stratigraphy consisted of a brown sandy loam A horizon 18-28 cm (7-19.3 in) thick overlying a yellowish brown sandy clay B horizon. Each unit was dug by hand down to the sandy clay B horizon. Unit 2 contained a flake, Unit 4 contained a uniface with a straight-to-convex working edge, Units 5 and 6 contained recent historic artifacts, and Units 1 and 3 were devoid of cultural material.

Arrow points and ceramics found in 1970 indicated that a Late Prehistoric period occupation was responsible for a major portion of the archaeological deposit at 41DT34. The presence of dart points may reflect an Archaic period occupation, but they could also be part of the Late Prehistoric assemblage. The relative lack of material uncovered during the 1987 test excavations indicated that the site had little potential to yield additional data which could further an understanding of

local prehistory. Therefore, no additional work was recommended.

41DT67

In 1970, SMU surveyors recorded this site as site X41DT53 (Hyatt and Skinner 1971); it was later assigned the state trinomial 41DT67. Site 41DT67 was located on a forested knoll adjacent to the floodplain, about a meter above the floodplain at its highest point. This knoll lay along the base of the slope of a much higher terrace remnant on which site 41DT68 was located. The elevation of the knoll was ca. 123.1 m (404 ft) amsl. The South Sulphur River was ca. 65 m (213 ft) east of the site, and a slough was present along the southeast edge of the knoll (Figure 3-2). The site was about 800 m (2624.7 ft) northeast of Harper's Crossing. The soil type is mapped as Woodtell loam (Ressel 1979). The site size on the 1970 site form listed the diameter as 50 m (164 ft), but the results of test excavations indicated that an estimate of 25 x 35 m (80 x 114.8 ft) was more accurate.

In 1970, SMU conducted surface collections within the slough and obtained 30 flakes, 26 chips, four cores, two dart points, two bifaces, two arrow points, two arrow point preforms, six retouched pieces, 30 pieces of fire-cracked rock, one hammerstone, and two pottery sherds. Some faunal material was also noted, but was not quantified. Analysis of the tool types revealed that the darts were both Gary points, that one arrow point was a Catahoula and the other was a Steiner, and that one biface was aborted early in the reduction process, whereas the other was aborted late. The retouched pieces included two end scrapers and four marginally modified tools with straight-to-convex working edges.

Subsurface investigations during the 1987 survey included shovel tests spaced at 5-10 m (16.4-32.8 ft) intervals. Only four shovel tests were dug during the survey phase to avoid unnecessary disturbance to the archaeological context. The high density of flakes, fire-cracked rock, and faunal remains indicated that this site had great potential for contributing to the understanding of prehistoric subsistence patterns, and it was clear that controlled test excavations would be required during the testing phase. During this phase, two 50 x 50 cm (19.68 x 19.68 in) units (Units 1 and 2) and two 1 x 1 m (3.28 x 3.28 ft) units (Units 3 and 4) were excavated on the knoll to obtain controlled samples of artifacts (Figure 3-2). Units 1 and 2 were dug down to clay in a single level, whereas Units 3 and 4 were excavated down to the sandy clay B horizon in arbitrary 10 cm (3.9 in) levels.

Site stratigraphy consisted of a very dark grayish brown (10YR3/2), silty loam midden layer down to 30

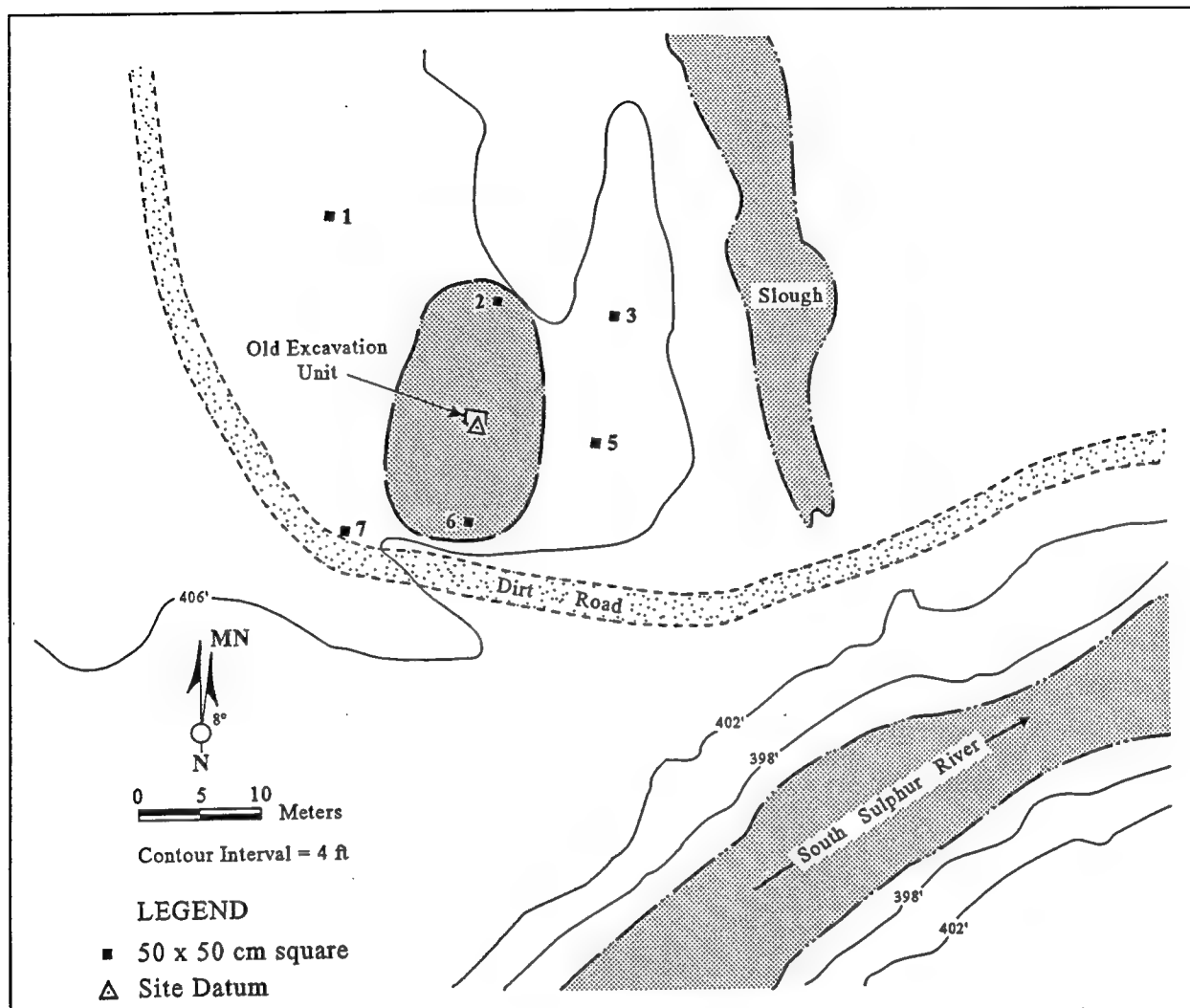


Figure 3-1. Major topographic features and location of excavation units at site 41DT34.

cm (11.8 in), overlying a light brown (10YR4/3), clayey sand gradually turning to a mottled brown clay B horizon (10YR5/3, 10YR6/6, and 7.5YR6/6). Depth to clay varied from 47-60 cm (18.5-23.6 in). Most artifacts were present within the upper midden layer. The general contents of each unit are presented in Table 3-1.

The arrow point types included: an Alba point; two Catahoula points; a Steiner point; an untyped, expanding stemmed point; and an untyped, straight stemmed point. In addition, the tip of an unidentifiable arrow point was found. The Alba point was found in Unit 2 (dug in a single level), and the Steiner point was found in Level 5 of Unit 4. Tool types included two knives, one drill/awl, five aborted bifaces (four discarded early and one discarded late in the reduction process), three biface fragments, one end scraper, two sidescrapers, six marginally retouched unifaces with straight-to-convex

working edges, and three marginally retouched unifaces with concave working edges.

A total of 41 sherds and one pipe fragment were recovered during the 1987 investigations. All ceramic materials were recovered from the midden knoll, and were particularly common near the center of the knoll and the site datum. Several varieties of ceramic wares were present at the site, with grog (47.6%), coarse grog (19.1%), and small grog tempered (19.1%) sherds most common in the sample. The pipe bowl sherd was found in Unit 2. The grit and bone tempered wares comprise between 7.1-9.5% of the assemblage.

The grit tempered pottery from 41DT67 is plain, and lacks interior or exterior surface treatment except for interior smoothing on a bowl sherd from Unit 4, Level 1. This particular piece contains abundant coarsely ground hematite inclusions, while on the other grit tempered

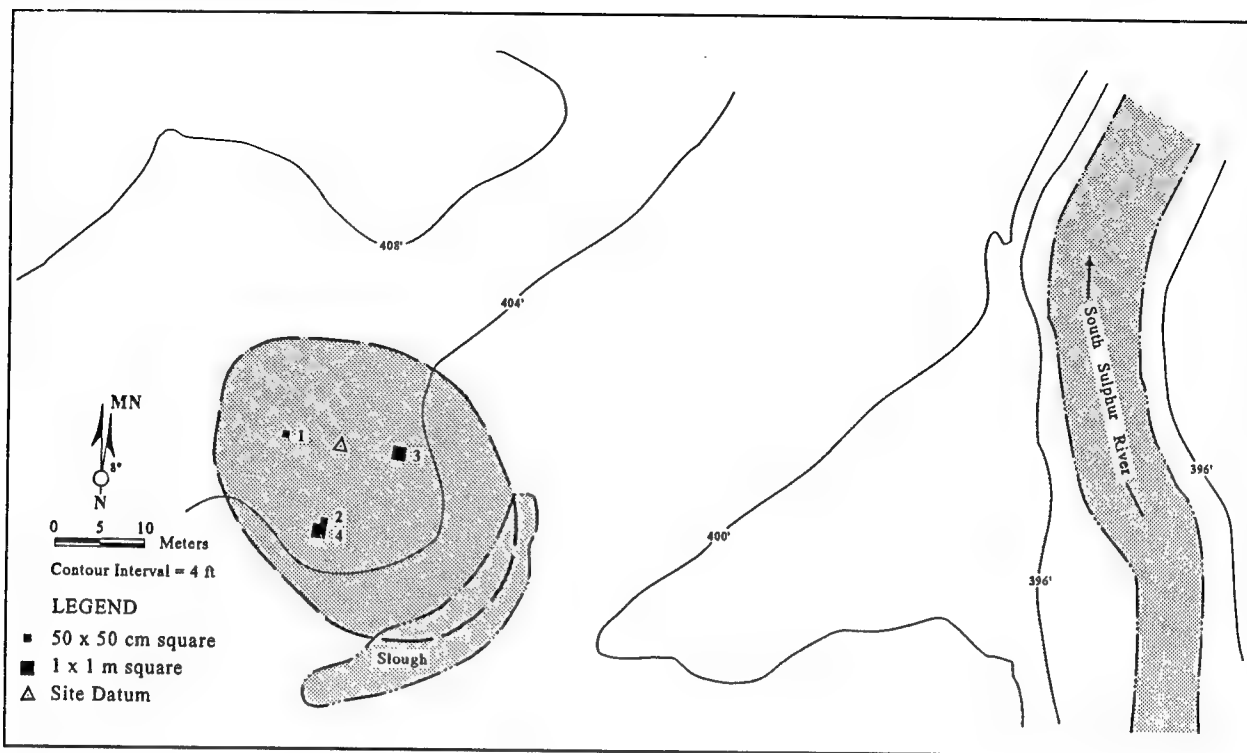


Figure 3-2. Major topographical features and location of excavation units at site 41DT67.

sherds, the paste and temper are more finely textured and compact (see Appendix B for general ware information). One of the grit tempered body sherds is decorated with a series of closely spaced curvilinear incised lines on a bowl form; the motif is comparable to Crockett Curvilinear Incised (Suhm and Jelks 1962: Plate 17b, c). The grit tempered wares are relatively thin, averaging 7.1 ± 0.9 mm, with a range between 5.7-8.0 mm.

The bone tempered pottery occurs as simple bowls with burnished exteriors. The bowls are thin, averaging 4.8 mm, and ranging from 4.6-5.0 mm in thickness. The coarse grog tempered pottery is represented by six body sherds and two basal sherds. The body sherds are from thick (9.2 ± 0.7 mm) utility ware jars or deep bowls, and in at least two instances can be classified as Williams Plain (Brown 1971:42). The two base sherds are flat, and range in thickness from 11.0-12.0 mm.

Several vessel forms are represented in the small grog tempered pottery, including parts of three bowls, a jar, and a carinated bowl. Only two of the vessels appear to have decorations; a bowl with coarse punctations and a restricted orifice jar with nodes, or broad fingernail impressions which are smoothed. The carinated bowl is burnished on both interior and exterior surfaces, but the remainder of the small grog tempered sherds are plain and have no surface treatment. This ware is typically thinner than the other grog tempered wares, presumably relating

to different technological and functional uses. Mean thickness is 6.0 ± 0.9 mm, with a range of 4.5-7.5 mm.

The grog tempered pottery also appears to include only plain vessels, bowls, and jars. Thirty percent of the sherds are burnished or smoothed on interior/exterior surfaces, but no decorated sherds are present. The mean body sherd thickness is 7.9 ± 0.8 mm, with a range of 5.2-9.2 mm. This substantial range in thickness reveals the fact that relatively thin bowls (ca. 5-7 mm) and relatively thick jars (7.5-9.2 mm) were manufactured using grog temper. The three bases in the collection are flat and somewhat thicker than the vessel side wall. One base is still defined with a definite contact point. The mean thickness of the bases is 10.2 ± 0.4 mm.

In Unit 4, a human tooth was found in Level 1, but no other skeletal remains were encountered. In Levels 5 and 6 of this unit, Feature 1 was discovered. Feature 1 is a shallow pit which extends ca. 20 cm (7.9 in) from the east wall and was visible in the east profile as a shallow dip in the midden between 30-55 cm (11.8-21.6 in) below surface (Figure 3-3). The pit yielded virtually the same artifactual contents as found in the midden.

The presence of arrow points and ceramics indicated that a Late Prehistoric period occupation was responsible for at least part of the archaeological deposit at 41DT67. The ceramic assemblage from the site represents a diverse range of vessel forms, uses, and methods of

TABLE 3-1

Summary Of Artifacts By Class From Site 41DT67

Unit	Level	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Ceramics	Baked Clay	Bone	Shell	Charcoal	Burned Rock
Surface	—	—	1	—	—	—	2	—	—	—	—	—
1	1	—	2	—	9	—	6	11	30	13	1	14
2	1	1	1	1	10	—	1	12	43	36	8	22
3	1	1	3	3	43	2	10	21	80	12	2	106
	2	—	—	2	4	1	12	58	158	48	1	106
	3	—	—	1	7	—	1	14	28	13	3	16
	4	—	—	1	5	1	1	7	25	6	1	16
	5	—	—	—	—	—	—	—	4	3	1	4
4	Surface	—	—	—	—	—	—	—	22	2	—	2
	1	3	1	1	37	—	4	96	2	45	2	77
	2	—	—	2	16	1	3	71	153	89	6	59
	3	—	—	—	8	—	2	42	32	30	7	30
	4	—	—	—	1	—	—	5	12	11	1	15
	5	1	1	—	3	1	—	8	13	11	1	8
	6	—	—	—	—	—	—	—	—	—	—	4
Total		6	9	11	143	6	42	345	602	319	34	479

surface treatment in use during the Late Prehistoric period occupation. The overall lack of decorated ceramics, the frequency of coarse tempered grog sherds, and the identification of one sherd as Crockett Curvilinear Incised suggests that the occupation probably dates ca. A.D. 800-1200. Although the Gary dart points may have been deposited by a Late Archaic or Early Ceramic period occupation, their use may have continued into the early portion of the Late Prehistoric period.

The high concentration of artifacts and the presence of features and midden in such a small area suggested that the deposit was the result of either repeated short term occupations or a single continuous occupation such as one might expect to find at a house site. This site could represent part of a settlement system characterized by small homesteads dispersed along the terrace edge near the river, but this interpretation is speculative, since no definitive evidence of a structure was uncovered during the limited test excavations.

Based on the abundance of material found during the 1987 study, this site appeared to have good potential for contributing to an understanding of local prehistory.

41DT68

This site, recorded as site X41DT54 in 1970 (Hyatt and Skinner 1971) was later assigned the state trinomial 41DT68. Site 41DT68 is located on a high terrace remnant surrounded by a floodplain. Site elevation ranged from ca. 124.3-129.8 m (406-426 ft) amsl. Most of the landform was forested, but part of the top and most of the eastern slope were in pasture. The South Sulphur River is ca. 100 m (328.1 ft) east of the site, and site 41DT67 is present 40 m (131.2 ft) downslope along the southeast edge of the landform (Figure 3-4). The site is about 800 m (2624.7 ft) northeast of Harper's Crossing. The soil type is listed as Woodtell loam (Ressel 1979). The site size on the 1970 site form was listed as undetermined, but

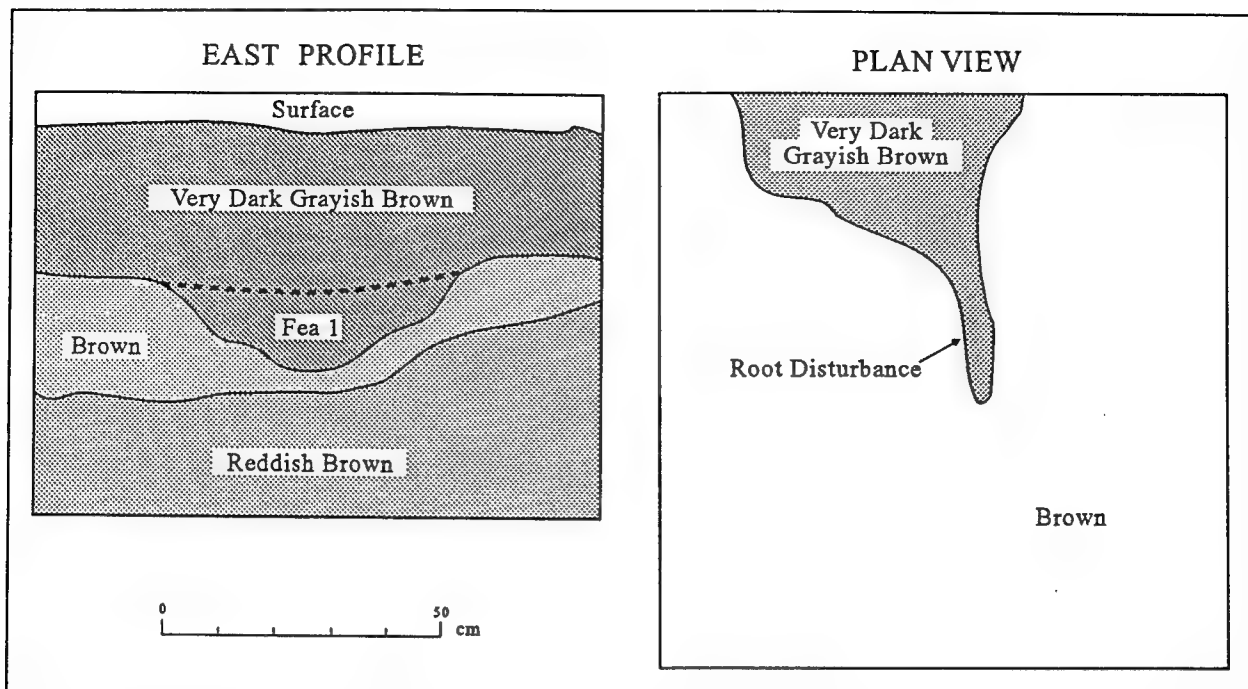


Figure 3-3. Profile and plan view of Unit 4 showing Feature 1 at site 41DT67. Figure 3-2 shows the location of Unit 4 relative to the site limits.

the results of the 1987 shovel tests and test excavations indicated that cultural materials extended across most of the terrace remnant, covering an area of at least 250 x 125 m (820 x 410 ft).

It seemed as if there were several contiguous light scatters of lithic materials covering the landform, but it was not possible to isolate these into separate sites. The lithic scatter first recorded as the site in 1970 was situated in an erosional area near the top of the terrace at the intersection of two fence lines (Figure 3-4). During the 1987 investigations, a concentration of early twentieth century historic artifacts was found in this same area, extending ca. 40 m downslope toward the southeast. However, the densest concentration appeared to extend over a 20 x 20 m (65.6 x 65.6 ft) area along the north slope of the landform where several flakes were found eroding out of a farm road. In addition to these concentrations, flakes were found sporadically in shovel tests across the top of the terrace, and flakes and cobbles were observed in several erosional areas along the eastern slope.

The 1970 surface collections near the fence lines obtained 12 flakes, eight chips, four cores, one biface, one arrow point preform, five retouched pieces, 36 pieces of fire-cracked rock, and two hammerstones. No pottery was found at that time. Subsurface investigations during

the 1987 survey included shovel tests spaced at 10-30 m (98.4 ft) (3.05-98.4 ft) intervals. A total of 100 shovel tests was dug in an attempt to define the site boundaries during the survey phase. Many shovel tests were devoid of artifacts, and those in which artifacts were found yielded very little. Depth of the deposit was only 10-15 cm (3.9-5.9 in). Three 50 x 50 cm (19.68 x 19.68 in) units (Units 1-3) were excavated to obtain a controlled sample (Figure 3-4). Each was dug by hand down to clay, and the matrix was dry screened through 6.4 mm (0.25 in) mesh. Unit 1 contained only one flake and one sherd; Unit 2 contained 11 flakes, two biface fragments in the upper 10 cm, and a few pieces (1 g) of shell at the bottom; and Unit 3 contained one small fragment of burned rock. Site stratigraphy consisted of a brown, sandy loam A horizon 10-15 cm (3.9-5.9 in) thick overlying an orange brown clay B horizon.

The recovered sherd is a small plain body sherd, tempered with finely ground up grog. It has a smooth exterior, and is 8.0 mm thick. It likely derives from a jar or a small bowl.

The low density of flakes, fire-cracked rock, and lack of faunal remains indicated that this site had little potential for contributing to an understanding of prehistory. Therefore, no further work was recommended.

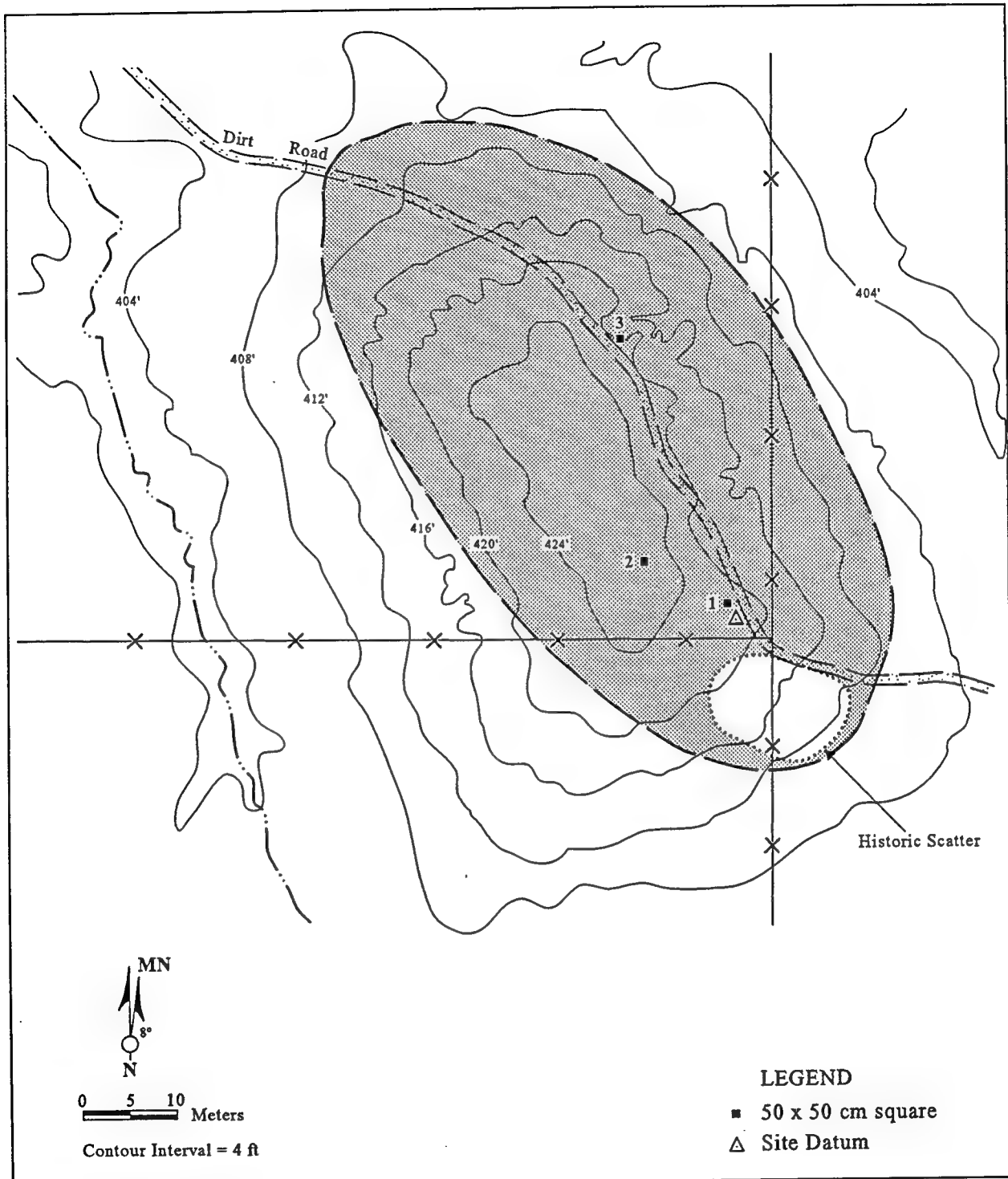


Figure 3-4. Major topographical features and location of excavation units at site 41DT68.

41DT71: The Ewing Site

The Ewing site is located near the end of a low terrace ridge on a meander bend of Doctors Creek. The elevation of the site is 124-125 m (406.8-410 ft) amsl. The soils of this ridge are mapped as Annona loam and the adjacent floodplain of Doctors Creek is Kaufman clay. Parts of the site are cleared and in pasture, while the remainder is covered by a dense stand of small hardwood trees, shrubs, and grasses. Larger hardwoods are present along the banks of Doctors Creek and in the adjacent floodplain. Active surface erosion is confined to a dirt vehicle path that crosses the site area from northwest to southeast.

This site was originally recorded in 1970 as a sparse scatter of fire-cracked rocks and lithic artifacts within an area 10 m (32.8 ft) in diameter. A surface collection made at that time included 23 pieces of lithic debitage, 31 pieces of fire-cracked rock, eight retouched flakes, four cores, and a single biface. Limited excavations, consisting of five 1 x 1 m (3.28 x 3.28 ft) units, were undertaken in 1972 (Hyatt et al. 1974: 71). More extensive work was planned for the site, but this was discontinued when the shallowness of the site deposit and the scarcity of artifacts were determined. Only a few pieces of lithic debitage and fire-cracked rock fragments were recovered from each unit, and sterile clay consistently was found to be only 3-4 cm (1.2-1.6 in) below surface.

The Ewing site was relocated and re-evaluated during the 1987 survey. Several pieces of lithic debitage and fire-cracked rock were observed in the ruts along the vehicle path over a distance of ca. 10 m (32.8 ft). A site datum was established a short distance north of the surface artifacts, and a series of shovel test units was excavated in search of subsurface materials. The only recovered subsurface artifact was a single piece of lithic debitage from one of the units closest to the surface scatter. Attempts to relocate the test squares excavated in 1972 were unsuccessful.

Subsequently, three 50 x 50 cm (19.68 x 19.68 in) units and one additional shovel test unit (30 cm in diameter) were excavated (Figure 3-5). Each was dug in a single vertical level, with all fill screened through 6.4 mm (0.25 in) mesh. Lithic debitage ($n = 7$) is the only class of artifacts recovered from these units, with a maximum of only three pieces from Unit 1. Site stratigraphy consisted of a relatively shallow, sandy loam A horizon over a mottled orange-brown clay. The upper, sandy loam zone was deeper in the western part of the site (25-30 cm [9.8-11.8 in]), but artifact density was very low in all sampled areas.

In terms of potential impacts, the site may either be destroyed by borrow pit construction or inundated by the conservation pool of Cooper Lake. No further work is considered to be necessary at the Ewing site, due primarily to the very low density of artifacts and the total lack of subsistence remains from both the 1972 and 1987 test excavations.

41DT81

This site was first investigated in 1972 and recorded as site X41DT69 (Hyatt et al. 1974); it was later assigned the state trinomial 41DT81. Once the 1987 survey was under way, it became clear that the site's location was incorrectly mapped. Site 41DT80 is in the vicinity of the location mapped for 41DT81, which is why 41DT80 was mistakenly referred to as 41DT81 in the survey and testing phase field notes. It was not until the testing phase was under way, when portions of old SMU excavation units matching those mapped for 41DT80 were uncovered, that the true identity of this site was discovered and site numbers were corrected.

During the 1987 survey, a temporary site number (102) was assigned to this site, since it was thought to be a newly recorded site. Later, it was designated by the state trinomial 41DT107. When test excavations uncovered portions of old SMU excavation units at 41DT80, a renewed search of old photographs and field notes was conducted in an attempt to find the real site 41DT81. The field notes stated that 41DT81 was 100 m (328 ft) north of 41DT80, which was the approximate distance north-south between 41DT80 and T102 (41DT107). Therefore, it seemed certain that T102 (41DT107) was actually the previously recorded site 41DT81. To correct the situation, the trinomial 41DT107 was withdrawn and all artifacts and forms labeled during survey and testing were renumbered as 41DT81.

Site 41DT81 is located in the forest along the edge of a low Pleistocene terrace with a very gradual slope that rises less than a meter above the floodplain at its highest point. Site elevation is ca. 123.1 m (404 ft) amsl. The South Sulphur River is ca. 90 m (295.3 ft) east of the site, and several water-filled dozer cuts nearly encircle the northeast portion of the site (Figure 3-6). The site is situated ca. 1.6 km (1 mi) northeast of Harper's Crossing, on Ode Thomas' old ranch. The soil type is mapped as Annona loam (Ressel 1979). The site size is 7 m (23 ft) in diameter on the original site form. Apparently, the material eroding out of the dozer cuts on the northeast portion of the site was all that was observed at the time of recordation. The results of the 1987 test excavations indicate that an estimate of 20 x 10 m (65.6 x 32.8 ft) is

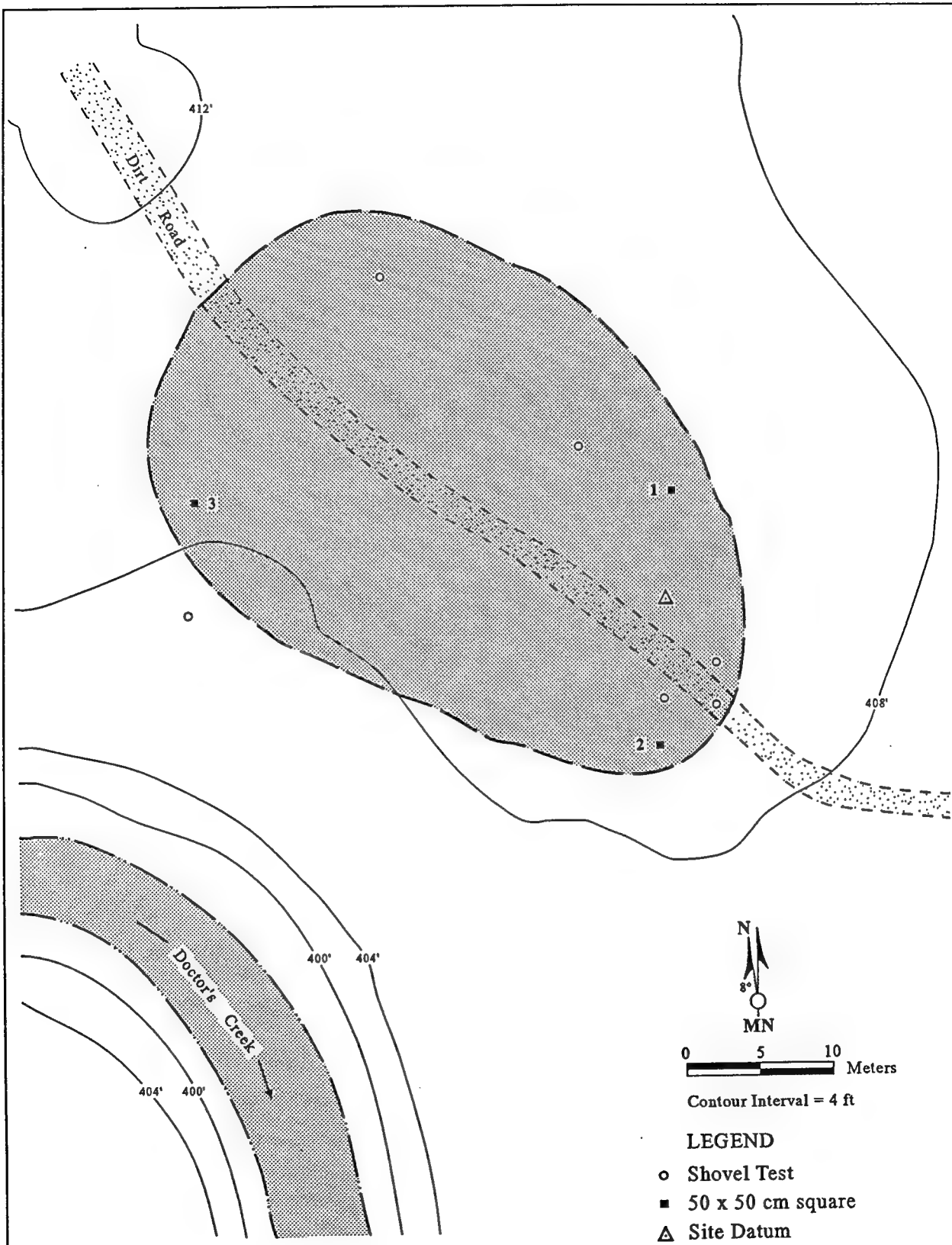


Figure 3-5. Major topographical features and location of excavation units at site 41DT71.

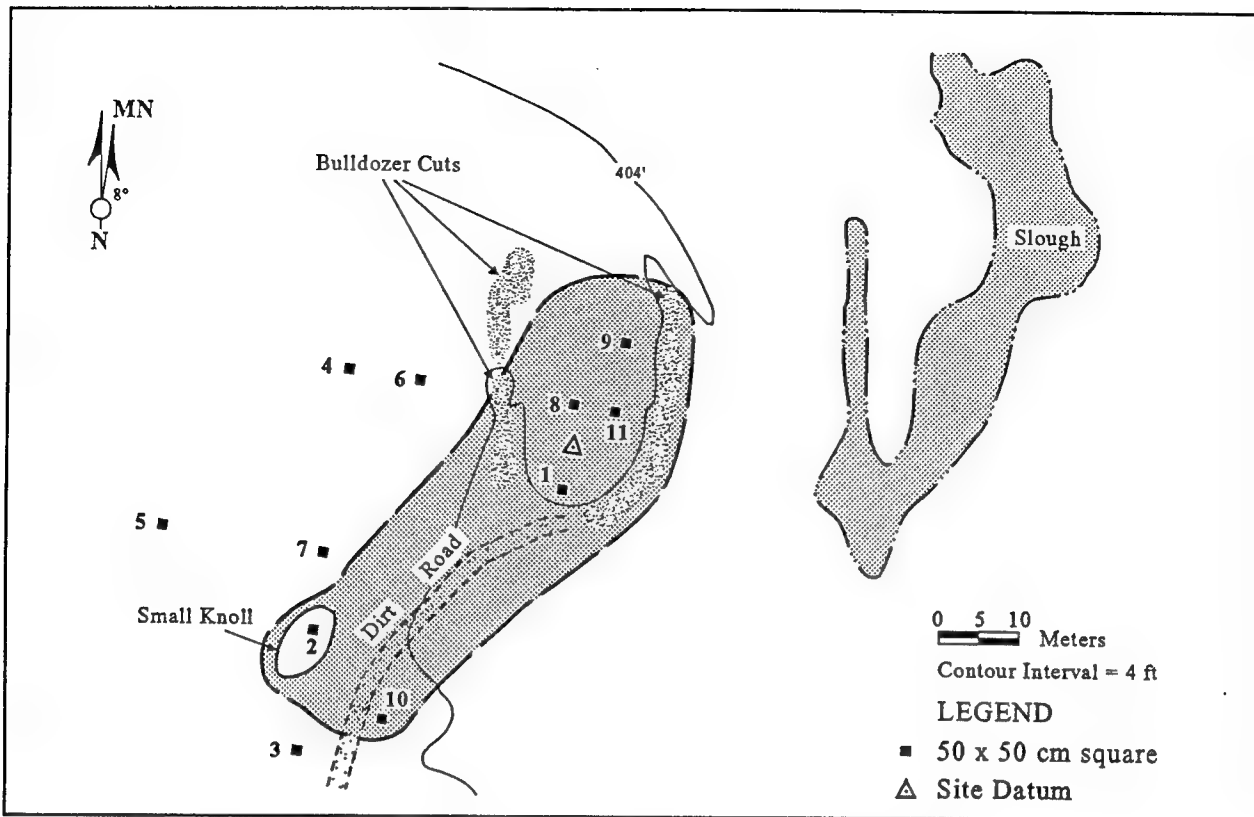


Figure 3-6. Major topographical features and location of excavation units at site 41DT81.

more accurate for the northeast concentration, and that the full extent of the site was actually about 70 x 20 m (229.6 x 65.6 ft); since flakes were recovered on the surface and in one test unit about 30 m (98.4 ft) to the southwest of the principal deposit.

In 1972, flakes and fire-cracked rock were noted eroding out of the dozer cuts. These same materials were observed in the dozer cuts during the 1987 survey, and in the three shovel tests dug across the northeast concentration. Several additional shovel tests dug in the area west of the principal site area, did not yield any cultural material. It was not until the light testing program was conducted that the full extent of the site was discovered.

During the testing program, eleven 50 x 50 cm (19.68 x 19.68 in) units were excavated to determine site limits and depth of the deposit, and to obtain a sample of artifacts. Two concentrations of artifacts were recognized at that time: the northeast concentration, which formed the area originally recorded as 41DT81, and the southwest concentration, which was present on a very slight rise about 30 m (98.4 ft) southwest of the major concentration (Figure 3-6). Units 1, 8, 9, and 11 yielded artifacts (Table 3-2). All other units were sterile. Unit 10

was also devoid of cultural materials, but it is included within the southwest concentration because flakes were observed eroding out along the ground surface in the area surrounding it.

Table 3-2 lists the artifacts recovered from excavation units. Identifiable tool types found on the surface included one Alba-like arrow point, one knife fragment, and one drill/awl. One knife fragment and two marginally modified unifaces with straight-to-convex working edges were found in Unit 1. One arrow point preform, one aborted biface discarded early in the reduction process, and one marginally modified uniface with straight-to-convex working edges were present in Unit 11.

Of the ten sherds found at 41DT81, one was found on the surface 7 m east of the datum, and the others were recovered in 50 x 50 cm (19.68 x 19.68 in) units from both the northeast and southwest concentrations. Only plain grog tempered and coarse grog tempered wares were present at the site. The grog tempered plain pottery ranges in thickness from 7-9.9 mm, and only one is smoothed on the exterior surface.

The coarse grog tempered sherds show weathering and the thickness of only one (from the surface) could be

TABLE 3-2

Summary Of Artifacts By Class From Site 41DT167

Unit	Level	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Ceramics	Baked Clay	Burned Rock
Surface	—	1	2	—	—	—	1	—	—
1	—	—	1	2	12	—	1	—	7
2	—	—	—	—	22	1	3	7	6
8	—	—	—	—	8	—	—	—	4
9	—	—	—	—	8	—	1	—	1
11	—	—	2	1	17	1	4	3	13
Total		1	5	3	67	2	10	10	31

measured. It was 11.0 mm thick and is classified as Williams Plain (Brown 1971:42). The sherd probably is a fragment of a restricted orifice vessel, perhaps a jar. A flat base of coarse grog tempered ware was found in Unit 11 in the northeast concentration.

The small size of the ceramic assemblage and the lack of decorated sherds prohibits a conclusive assessment of the age or affiliation of the pottery from 41DT81. However, the recovery of an Alba-like arrow point from the surface as well as the presence of Williams Plain may indicate that the site was occupied during the Early Caddoan period, ca. A. D. 800-1200.

For the most part, site stratigraphy consisted of a light brown sandy loam A horizon ranging in depth from 15-40 cm (5.9-15.7 in), overlying a yellowish brown sandy clay B horizon. In Units 1, 3, 6, 8, 10, and 11, a layer of silty sand ranging from 3-13 cm (1.2-5.1 in) thick comprised the upper portion of the A horizon, indicating that the site was submerged beneath flood waters in recent years.

Unit 2 exhibited stratigraphy that was somewhat different from that of the other units. It was characterized by a layer of yellowish brown fine sand 70 cm (27.6 in) deep overlying a mottled gray and orange clay. Artifacts were present throughout the sandy layer.

On the original 1972 survey form, the shallow nature of the deposit at this site was cited as a reason for avoiding further work. The 1987 testing results also indicated that most of the deposit was relatively shallow,

and that it contained a low density of flakes, fire-cracked rock, and other artifacts, as well as a lack of faunal remains. These results also reaffirm that this site offers little potential for contributing to a better understanding of local prehistory. Therefore, no further work was conducted at 41DT81.

41DT83

Site 41DT83 is located on top and on the eastern slope of a large terrace ridge that extends into the floodplain of Doctors Creek. As defined by subsurface testing, the site is situated primarily on the highest elevations of the ridge; 124-128 m (408-420 ft) amsl, and over 100 m (328 ft) from the creek itself. Although it was cleared in the past, the site area is sparsely wooded with both cedar and hardwood trees. The soils of the ridge are mapped as Annona loam. The ridge slopes are extensively eroded in many places, exposing clay at the surface.

The site was discovered in 1972, but was not recorded until 1975. The site survey form noted 12-15 pieces of lithic debitage within an area measuring 3 m (9.8 ft) in diameter on the eroded hill slope. It appears that no surface collection was made at that time. When revisited in 1987, surface artifacts were observed over a much larger area. The terrace ridge upon which 41DT83 is located was investigated with systematically placed shovel tests during the 1987 survey, in part to help define the spatial limits of the site. In addition to the shovel test

transects, two 50 x 50 cm (19.68 x 19.68 in) units and two more 30 cm (11.8 in) diameter shovel test units were excavated (Figure 3-7).

It is difficult to establish site limits with certainty, due to a very low artifact density combined with the relatively small size of the subsurface test units. However, based on the results of shovel testing along with the distribution of surface artifacts, an area measuring about 100 m (32.8 ft) in diameter is included. Artifact density is quite low. None of the shovel test units and neither of the two 50 x 50 cm (19.68 x 19.68 in) units produced more than two pieces of lithic debitage.

In addition to debitage, small amounts of fire-cracked rock were recovered as well as one Gary dart point. This was the only temporally diagnostic artifact from 41DT83, and it came from the surface in the northeast corner of the site very near Unit 4 (Figure 3-7). The lack of faunal remains from any of the test units or from surface evidence indicates low potential to address subsistence questions. This absence of subsistence remains, along with the very low density of artifacts and evidence of extensive erosion have led to the recommendation that no further work is necessary at 41DT83.

41DT106

This site was recorded during the 1987 survey as site T101, and was later assigned the state trinomial 41DT106. It is situated in the forest along the edge of a low Pleistocene terrace with a very gradual slope that extended less than a meter above the floodplain at its highest point. Site elevation is ca. 123.1 m (404 ft) amsl. The South Sulphur River is only a few meters south of the site, and bank erosion should eventually impact the site (Figure 3-8). The site is situated about 1.1 km northeast of Harper's Crossing, adjacent to a trash-filled gully on Ode Thomas' old ranch. It is only 60 m (196.8 ft) east of site 41DT34 and about 40 m (131.2 ft) southwest of site 41DT80. The soil type is mapped as Kaufman clay, a frequently flooded soil type comprising most of the floodplain (Ressel 1979); however, most of the site is actually situated on Annona loam, which forms the terrace that apparently extends all the way to the river's edge. Only a few units in low-lying areas along the site's edge are comprised of clay. Site size is about 60 x 35 m (196.8 x 114.8 ft), although the densest concentration of material fell within the 25 x 25 m (82 x 82 ft) area lying between the farm road and the river.

Subsurface investigations during the 1987 survey included shovel tests spaced at 10-15 m intervals. A total of 10 shovel tests was dug on both sides of the farm road in an effort to determine site boundaries. At that time,

only those shovel tests excavated between the road and the river yielded flakes, so the site was originally defined as a 25 x 25 m area. During the testing program, flakes were found in Unit 3 dug as a control on the north side of the road. As a result, additional 50 x 50 cm (19.68 x 19.68 in) units were excavated across the terrace to examine the full extent of the scatter (Figure 3-8). Altogether, eight 50 x 50 cm (19.68 x 19.68 in) units were dug: three north of the road and five to the south. Each was dug by hand down to clay, and the matrix dry screened through 6.4 mm (0.25 in) mesh.

Site stratigraphy varies somewhat from unit to unit. In Unit 1, a dark brown loamy clay extends down only 3 cm (1.18 in) before a yellowish brown sandy clay is encountered. Units 2 and 8 consists of a dark brown sandy loam A horizon 20-45 cm (7.9-17.7 in) thick, overlying a yellowish brown sandy clay B horizon. Units 3, 5, and 6 consists of yellowish brown sandy loam down to 30 cm (11.8 in), overlying an orange and gray mottled clay. Unit 7 consists of a very dark grayish brown clay loam 10 cm (3.9 in) thick overlying a gray sandy clay.

Artifacts were found in all units (Table 3-3), although Units 5 and 6 contained only a few flakes each. Units 1, 2, 3, and 8 yielded the highest quantities of artifacts including flakes, sherds, and fire-cracked rock. Identifiable tool types were found on the surface and in Units 3 and 8. Three artifacts were collected from the ground surface: a sidescraper, a possible dart point tip, and a biface fragment. In Unit 3, a dart point tip and a marginally modified uniface with straight-to-convex working edges were recovered. In Unit 8, a broken untyped, contracting stemmed (Gary-like) dart point was found. In addition, bone and shell were recovered from this unit. Apparently, the area adjacent to the river was used as a trash disposal area, creating a very small midden deposit.

A total of 16 sherds was recovered from test units at 41DT106, including a small midden deposit and trash refuse area. No decorated pottery was present at the site, although two of the sherds were either smoothed or burnished on one surface. One small rim sherd is straight and direct, with a rounded lip. The rim is tempered with a fine and compact small grog, and it appears to be part of the same vessel (bowl) as two other small grog tempered sherds from Unit 3. The grit tempered pottery is represented by one plain body sherd 8.3 mm in thickness. The grog tempered pottery (with a medium to coarse texture) includes five body sherds averaging 8.4 mm in thickness, with a range of 7.9-9.1 mm. The sherds are too small to identify vessel form and two of the sherds are weathered or eroded on the exterior surface. Four small grog tempered sherds are present in the assemblage,

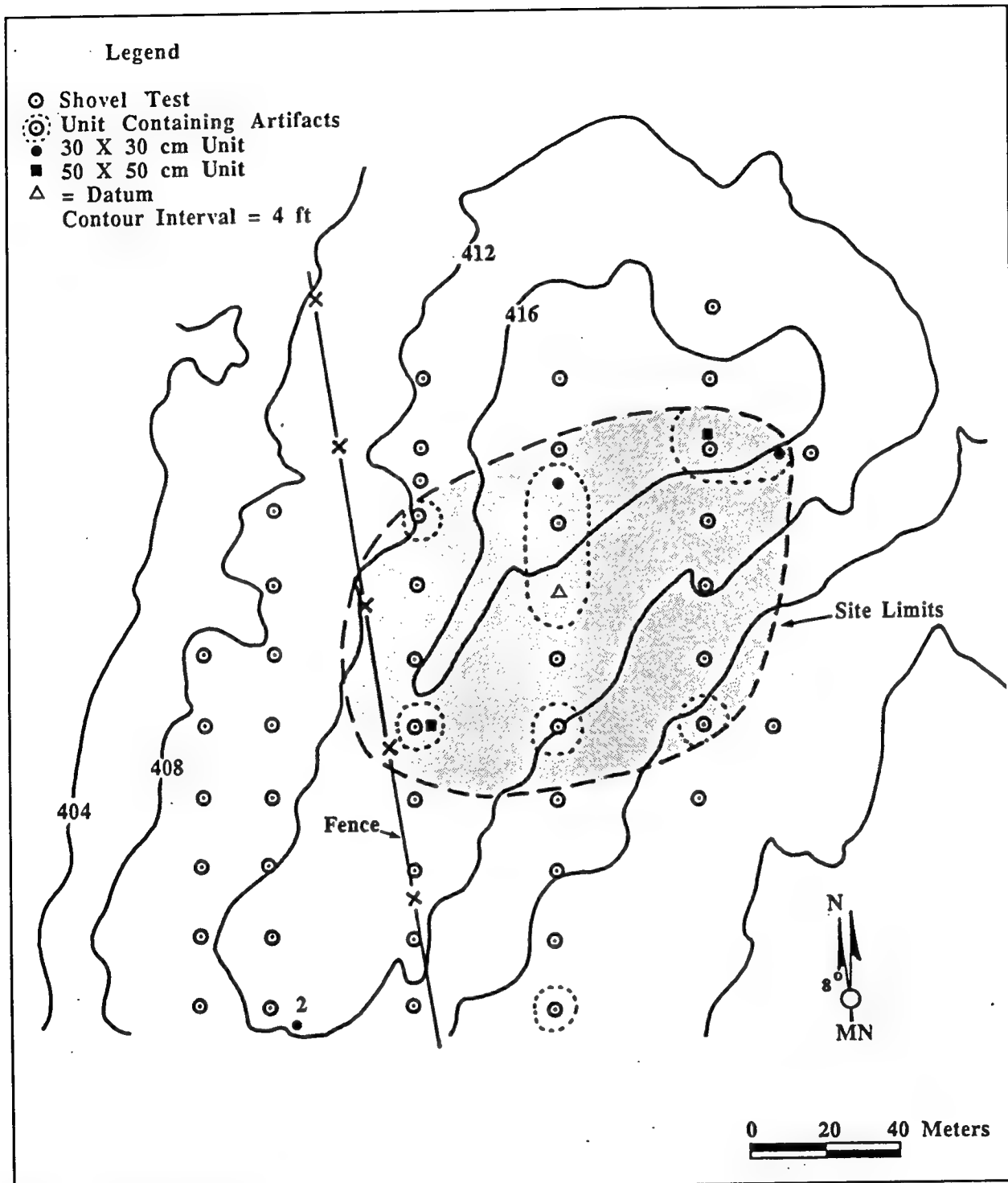


Figure 3-7. Major topographical features and location of excavation units at site 41DT83.

representing parts of two bowls. This ware is much thinner than the other wares from the site, averaging 5.6 mm with a range of 4.9-7.2 mm. The bone tempered plain pottery is represented by eight conjoined sherds from a

utility jar. The paste is medium fine textured and heavily tempered with bone. The vessel interior is smoothed. The vessel walls from these sherds range in thickness from 10.5-11.5 mm.

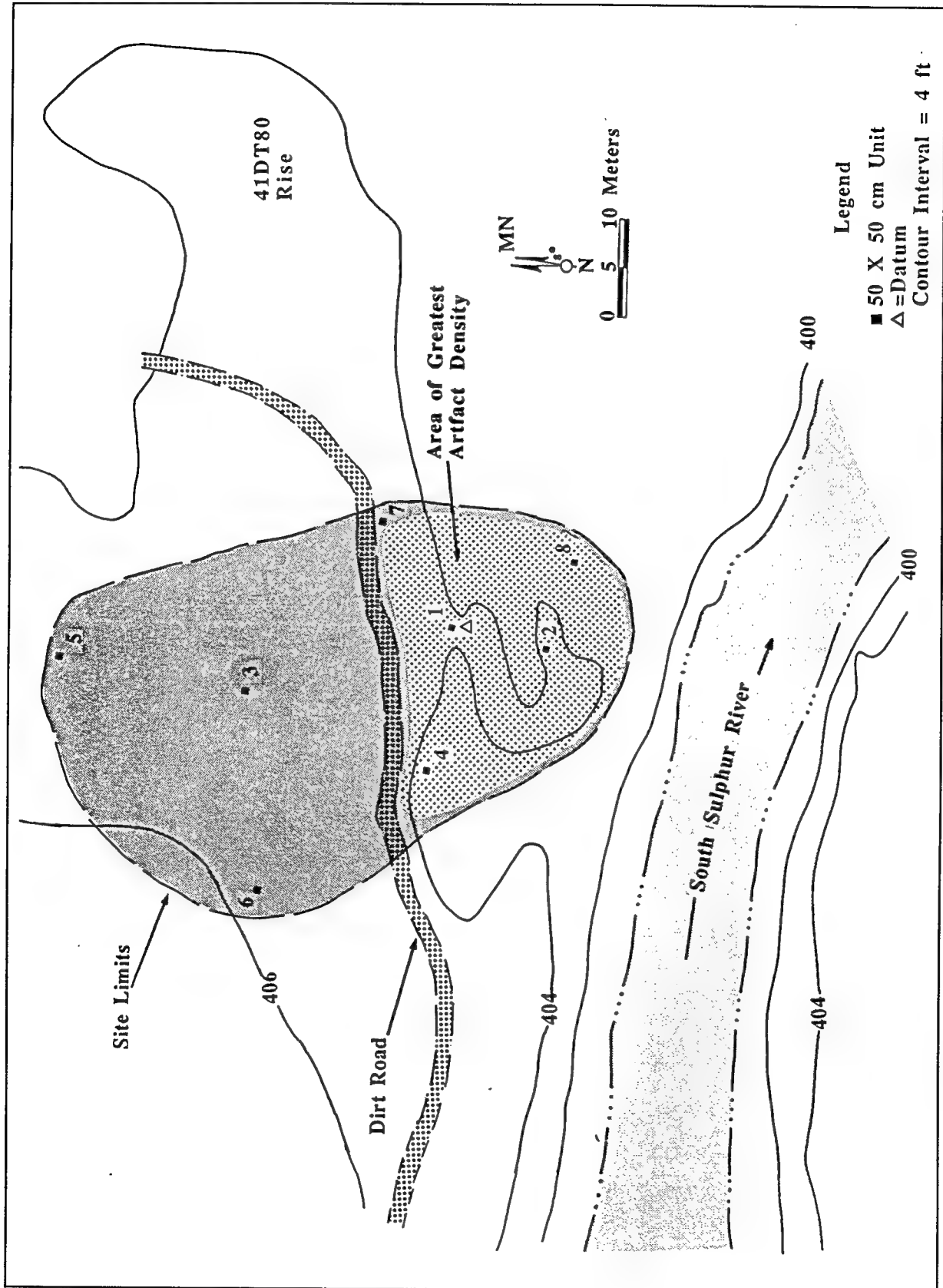


Figure 3-8. Major topographical features and location of excavation units at site 41DT106.

TABLE 3-3

Summary Of Artifacts By Class From Site 41DT106

Unit	Projectile Point	Biface	Uniface	Lithic Debitage	Ceramics	Baked Clay	Shell	Charcoal	Burned Rock
Surface	—	2	1	—	—	—	—	—	—
1	—	—	—	22	1	—	—	2	19
2	—	—	—	31	3	1	—	—	21
3	1	—	1	21	6	1	—	1	19
4	—	—	—	2	—	—	—	—	—
5	—	—	—	1	—	—	—	—	—
6	—	—	—	3	—	—	—	—	—
7	—	—	—	5	—	—	—	—	2
8	1	—	—	45	6	2	5	2	17
Total	2	2	2	130	16	4	5	19	78

The sherds from 41DT106 might represent evidence for a Late Prehistoric Caddoan occupation since they are similar to other Caddoan assemblages in terms of apparent vessel forms, temper use, and surface treatment (see Appendix B). On the other hand, the presence of only dart points (i.e., contracting stem points) may suggest that the occupation dates to the Early Ceramic period. Except for Unit 8, most test pits yielded moderate amounts of material. This low frequency of diagnostic items suggested that the site has limited potential to further our understanding of local prehistory. As a result, no additional work was conducted.

41DT108

This site was recorded during the 1987 survey as site T103 and was later assigned the state trinomial 41DT108. It is situated in old fields on both sides of the Harper's Crossing road, east of previously recorded site 41DT32 (Figure 3-9). The site is situated along the slope of a Pleistocene terrace on the north side of the South Sulphur River. Cultural materials are noted over this entire landform and exposed deposits have received three site numbers: 41DT31, 41DT32, and 41DT108. Site elevation ranges between 124-126.8 m (407-416 ft) amsl. Material is present in the road from the top of the terrace to the bottom of the slope. The action of a road grader has

undoubtedly moved material downslope in the road bed, but artifacts were also found in units dug downslope on the east side of the road, indicating that the site actually did extend downslope. Harper's Crossing on the South Sulphur River is nearly 400 m (1312.3 ft) south of the site. The soil type is mapped as Woodtell loam (Ressel 1979).

The site size was originally listed as 80 x 35 m (262.5 x 114.8 ft), but determination of site size was somewhat arbitrary because it is difficult to determine where 41DT108 ended and 41DT32 began. A very light scatter of flakes is present in between these two sites, so it is possible that both sites are part of the same occupation.

Subsurface investigations during the 1987 survey included shovel tests spaced at 10-15 m (32.8-49.2 ft) intervals. Approximately 10 shovel tests were dug on the east side of Harper's Crossing road, and five shovel tests on the west side, in an effort to determine site boundaries. Flakes and fire-cracked rock were found in a few shovel tests, but more material was found in the road than in the shovel tests. During the light testing program, seven 50 x 50 cm (19.68 x 19.68 in) units were dug: three west of the road and four to the east (Figure 3-9). Each was dug by hand down to clay, and the matrix dry screened through 6.4 mm (0.25 in) mesh. For the most part, site stratigraphy consisted of a light brown sandy loam A

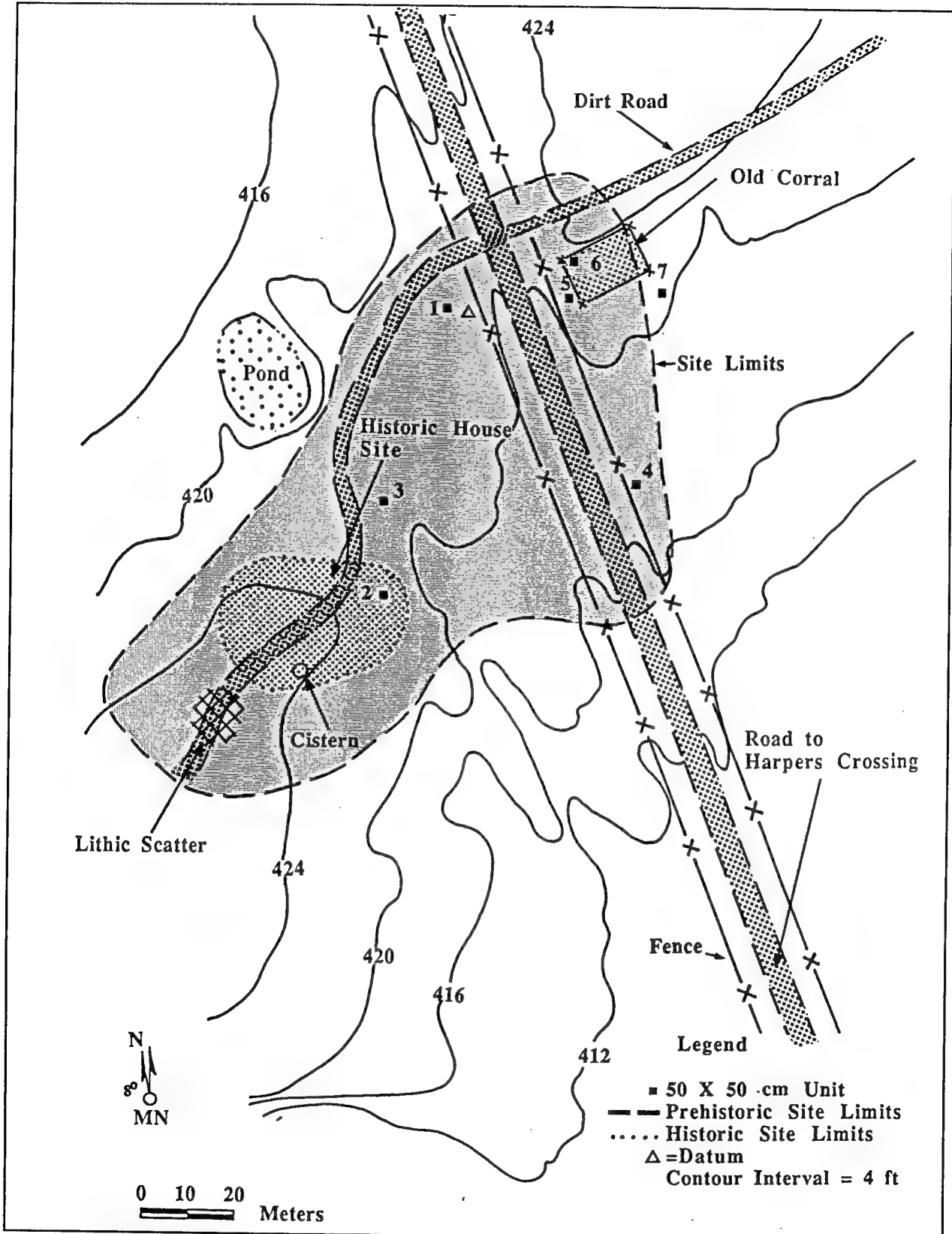


Figure 3-9. Major topographical features and location of excavation units at site 41DT108.

horizon ranging in depth from 8-20 cm (3.1-7.9 in), overlying an orange or yellowish brown sandy clay B horizon.

Units 1-3 demonstrate that a light scatter of flakes occurs on the west side of the road up to the edge of 41DT32. Only 30 m (98.4 ft) southwest of Unit 2, a concentration of flakes was observed in the road which formed part of 41DT32. However, Units 1 and 3 each yielded a single flake, and Unit 2 contained only two flakes. It is difficult to say whether these flakes should be grouped with 41DT32 or 41DT108, but for the purposes of this report they are considered to be part of 41DT108. The major concentration of artifacts fell in Unit 5 on the east side of the road at the top of the slope. Unit 5 yielded 13 flakes, two pieces of fire-cracked rock, and one core. Unit 6 yielded two flakes and Unit 4 yielded only one piece of fire-cracked rock. Unit 7 was devoid of cultural material. Historic materials, primarily glass fragments, were also recovered from Units 2, 3, and 6. These are derived from a historic house site located near Unit 2 on the west side of the road, and from a corral located on the east side of the road.

The testing results revealed a low density of flakes, fire-cracked rock, and other artifacts, as well as a lack of faunal remains. This suggested that this site had little potential for contributing to a better understanding of local prehistory. Therefore, no further work was conducted at 41DT108.

41DT109

This site was recorded during the 1987 survey as site T105 and was later assigned the state trinomial 41DT109. It is situated in an old field about 100 m (32.8 ft) northeast of site 41DT108 along the slope of a Pleistocene terrace on the north side of the South Sulphur River. The site was found on the south side of the farm road running along the crest of the terrace (Figure 3-10). Site elevation ranged between 126.5-128.7 m (414-422 ft) amsl. Harper's Crossing is ca. 550 m (1804.5 ft) southwest of the site, and the South Sulphur River is ca. 300 m (984.2 ft) due east. The soil type is mapped as Woodtell loam (Ressel 1979).

The site size is recorded as ca. 80 x 30 m (262.5 x 98.4 ft), but precise determination of its dimensions is not possible because it consists of an extremely light scatter of flakes. Several shovel tests in between those yielding artifacts were sterile, and no artifact concentrations were identifiable.

Subsurface investigations during the 1987 survey included shovel tests spaced at 15-20 m (48.1-65.6 ft) intervals. Approximately 20 shovel tests were dug along

the terrace south of the farm road to determine site boundaries. However, only three shovel tests yielded cultural materials. During the light testing program, six 50 x 50 cm (19.68 x 19.68 in) units were dug at 20 m intervals surrounding the shovel test which contained the most artifacts during the survey phase (Figure 3-10). Each unit was dug down to clay as a single level, and the matrix was dry screened through 6.4 mm (0.25 in) mesh. Site stratigraphy consisted of a yellowish brown sandy loam A horizon ranging in depth from 5-20 cm (2.0-7.9 in), overlying an orange or yellowish brown sandy clay B horizon.

Two units (Units 3 and 6) were excavated north of the farm road, and both were devoid of cultural materials. Two flakes were recovered from the ground surface. Unit 1 yielded nine flakes, one marginally modified uniface with straight-to-convex working edges, and three pieces of fire-cracked rock. Unit 2 contained three flakes, one marginally modified uniface with straight-to-convex working edges, and three pieces of fire-cracked rock. Unit 4 contained two flakes and a piece of fire-cracked rock, and Unit 5 contained only two flakes. No artifacts diagnostic of a particular time period or culture were recovered.

A single piece of eroded pottery was recovered from Unit 2. The sherd, less than 2.5 cm on a side, is apparently plain, and tempered with finely crushed grog. The paste, however, differs from other small grog tempered types from Cooper Lake (see Appendix B) in that it is laminated. Carbonaceous inclusions and small crushed grit fragments were also used as temper. The sherd is undiagnostic temporally, and may relate to either an Early Ceramic or Late Prehistoric period occupation.

Very little could be concluded about the nature of the occupation responsible for the archaeological deposit at 41DT109. The paucity of cultural material uncovered during the 1987 test excavations indicate that the site has little potential to further the understanding of local prehistory. Therefore, no additional work is recommended.

41DT110

This site was recorded during the 1987 survey as site T116, and was later assigned the state trinomial 41DT110. It is situated in pasture on the edge of a low Pleistocene terrace about 150 m (492.1 ft) southwest of the confluence of Doctors Creek and an intermittent tributary south of Doctors Creek. Site elevation was about 124.4 m (408 ft) amsl. Harper's Crossing is about 2.2 km (1.37 mi) southwest of the site and the South Sulphur River is nearly 1.5 km (0.9 mi) to the southeast. The soil

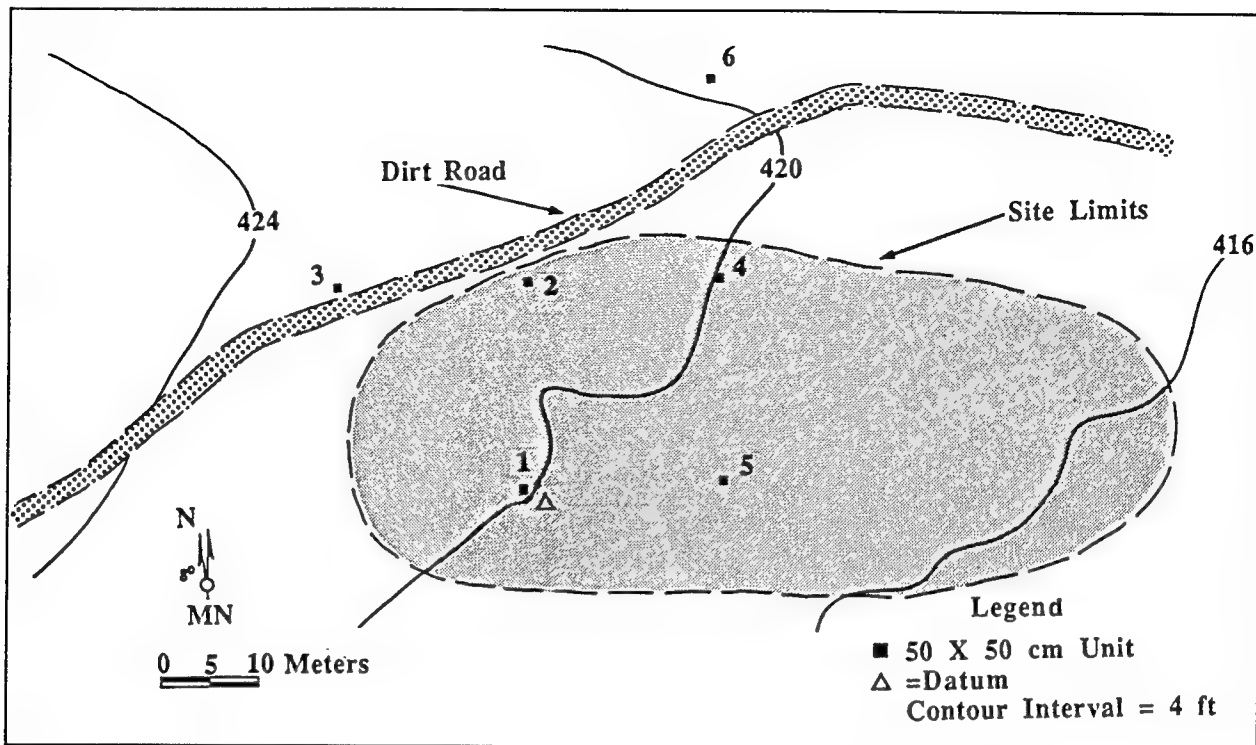


Figure 3-10. Major topographical features and location of excavation units at site 41DT109.

is mapped as part of the Freestone-Hicota complex (Ressel 1979). The site size measured approximately 50 x 30 m (164 x 98.4 ft), including patches of fire-cracked rock exposed in the floodplain at the base of the terrace. Most of the deposit was confined to a 20 x 20 m (65.6 x 65.6 ft) area along the edge of the terrace.

Subsurface investigations during the survey included shovel tests spaced at 10-15 m (32.8-49.2 ft) intervals. During the survey, numerous shovel tests were dug along the terrace surface to determine site boundaries. However, only two shovel tests yielded cultural materials. During the brief testing program, six 50 x 50 cm (19.68 x 19.68 in) units were dug at 10-15 m intervals (Figure 3-11). Each test unit was hand excavated to clay and the matrix was dry screened through 6.4 mm (0.25 in) wire mesh. Site stratigraphy consisted of an A horizon comprised of a grayish brown sandy loam 18-28 cm (7.1-11.0 in) thick overlying a yellowish brown sandy loam extending down from 31-61 cm (12.2-24 in) below surface, overlying a mottled orange and gray sandy clay B horizon. Iron or manganese concretions were also noted in a zone of gray sand between 51-65 cm (20.1-25.6 in) in Unit 2, but this zone was not observed in the other units.

The depth of the deposit varied considerably. Unit 1 yielded 32 flakes, five pieces of fire-cracked rock, and a marginally modified uniface with a concave working edge, which were recovered from the upper 20 cm (7.9

in). In Unit 2, nine flakes and nine pieces of fire-cracked rock were recovered, with a concentration of large flakes and cobbles observed at the interface between the brown sand and the gray sand containing concretions (ca. 50 cm [19.68 in] below surface). Only three flakes were found in Unit 3, all within the upper 30 cm (11.8 in). Likewise, only one flake was recovered from Unit 4. In Unit 5, two flakes and a piece of glass were recovered in the upper 20 cm (7.9 in) of dark brown sandy loam, then no artifacts were found until three flakes were recovered around 50 cm (19.68 in) below surface. Unit 6 was devoid of cultural materials.

No artifacts diagnostic of a particular time period or culture were recovered. In addition, the small site size and relative lack of cultural materials recovered from test excavations indicated that the site has little potential to contribute to the understanding of local prehistory. Therefore, no additional work was conducted.

41DT111

Site 41DT111 is located on top of a high Pleistocene terrace ca. 180 m (590.5 ft) south of Doctors Creek and ca. 400 m (1312.3 ft) east of the road running south from the City of Cooper to Harper's Crossing. Site elevation ranges between 127.4-129.8 m (418-426 ft) amsl. Harper's Crossing is ca. 2.8 km (1.7 mi) south southeast

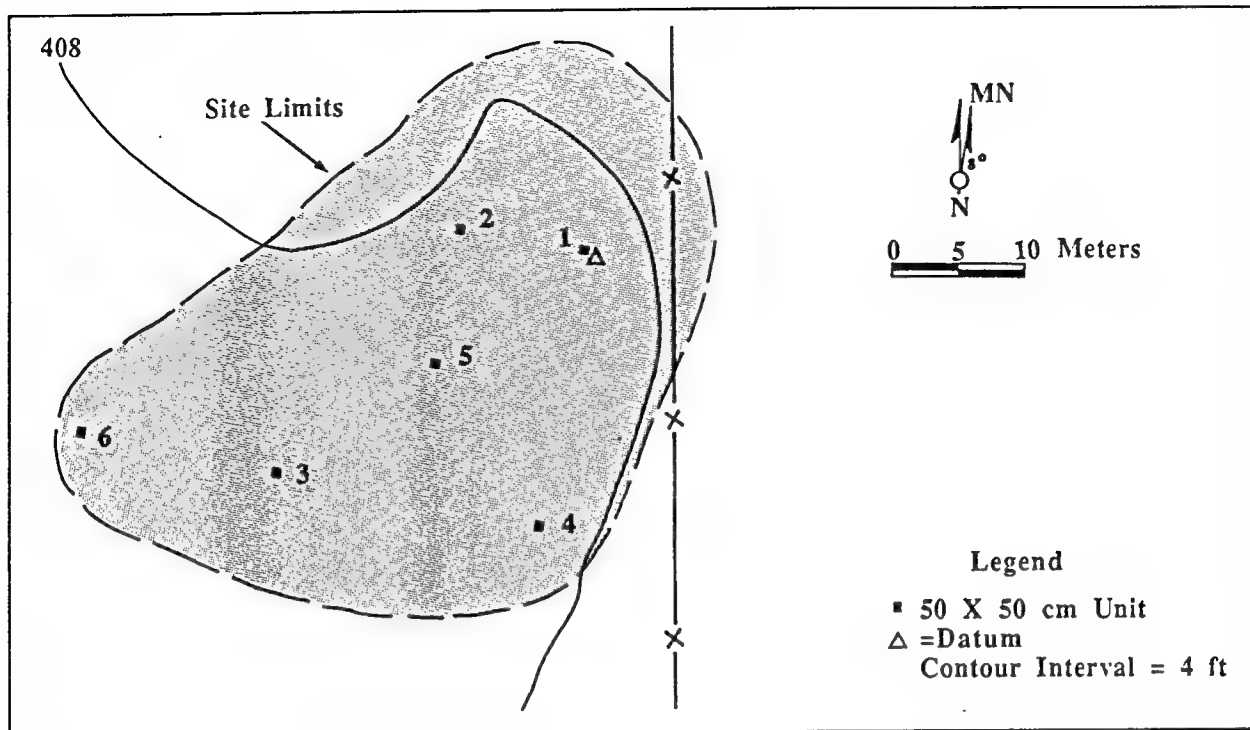


Figure 3-11. Major topographical features and location of excavation units at site 41DT110.

of the site, and the South Sulphur River is ca. 2.5 km (1.55 mi) to the southeast. The soil is mapped as Woodtell loam (Ressel 1979). Site size is ca. 95 x 95 m (311.7 x 311.7 ft) with an east-west fence line marking the southern boundary of the site. An intensive search of the numerous erosional areas along the slope south of this fence line produced only a single cobble which probably had migrated downslope. The landform is covered by pasture with a few patches of trees scattered across the hillslope and along the fence line.

Subsurface investigations during the 1987 survey included shovel tests spaced at 15-20 m (49.2-65.6 ft) intervals. During the survey, numerous shovel tests were dug along the terrace surface to determine site boundaries. Two shovel tests yielded ceramics, and several others yielded flakes. Fire-cracked rock was observed eroding out of the surface along the northwest slope. During the testing program, twenty 50 x 50 cm (19.68 x 19.68 in) units were dug at this site to determine site limits and depth of the deposit (Figure 3-12). Eleven units were dug at 10-20 m intervals across the top of the landform (Units 2, 4, 5, 6, 7, 8, 15, 17, 19, 21, and 22), two were dug along the northeast slope in an area of dark midden-like soil (Units 9 and 10), four were dug at 5 m (16.4 ft) intervals along the northwest slope near the location of the ceramics (Units 13, 18, 16, and 20), and three were spaced at larger intervals to examine the base

of the slope (Units 1, 12, and 14). Each test unit was hand excavated down to clay and the matrix was dry screened through 6.4 mm (0.25 in) mesh. Depth of the deposit is ca. 70 cm (27.6 in) on the highest portion of the landform to as shallow as 18 cm (7.1 in) along the eroded slope.

Site stratigraphy varies considerably from unit to unit. Along the eroded northwest slope, stratigraphy consists of a grayish brown, sandy loam A horizon 18-25 cm (7.1-9.8 in) thick overlying a reddish brown, sandy clay B horizon. On top of the landform, which had suffered little erosion, the A horizon was comprised of a brown, sandy loam 11-22 cm (4.3-8.66 in) thick followed by a yellowish brown, sandy loam overlying a gray mottled clay B horizon. The profile of Unit 4 serves as a typical example: dark brown sandy loam with root matter (0-12 cm), over yellowish brown loamy sand (12-55 cm), over a light brown silty sand (55-70 cm), over a mottled red and gray clay (70+ cm). Iron or manganese concretions were noted in the yellowish brown sand in Units 5 and 6, but they were not observed in the other units. Along the northeast slope, colluvial deposition of sandy loam eroded from the top part of the slope was observed. Unlike the shallow A horizon observed along the eroded northwest slope, the profile of Unit 10 consisted of dark brown sandy loam (0-10 cm), over very dark grayish brown sandy loam (10-50 cm [19.68 in]), over yellowish brown silty sand (50-85 cm [19.68-]) over

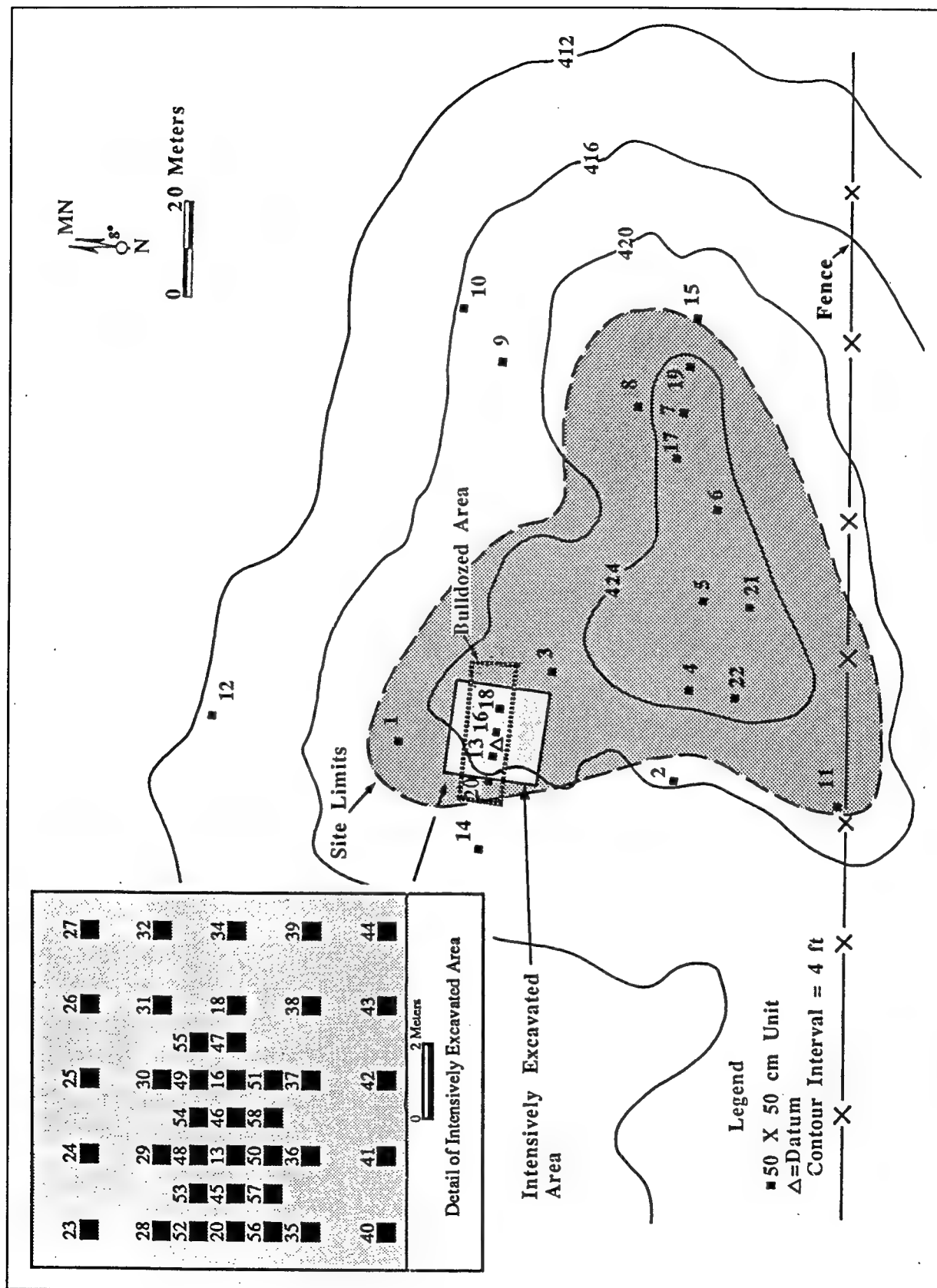


Figure 3-12. Major topographical features and location of excavation units at site 41DT111.

a clayey sand (85+ cm). Despite the dark nature of the soil, no artifacts were recovered from this unit.

The assemblage at 41DT111 was atypical of assemblages recovered from most of the prehistoric sites located during the 1987 survey, especially the assemblage from the northwest slope. The principal deviation from the normal Cooper Lake assemblages was that 41DT111 yielded nearly as many ceramic sherds as lithic items. This kind of pattern suggested that a very late prehistoric occupation occurred, since a similar trend was noted for the Forest Hill phase (A.D. 1350-1650) at Lake Fork Reservoir only 24.8 km (40 mi) south of Cooper Lake (Bruseh and Perttula 1981:143). The clearest indicators of late occupation included the two most interesting objects recovered from the northwest slope of the site: a Fresno arrow point found in Unit 13, and an oval white glass trade bead found in Unit 16, only 5 m (16.4 ft) to the east. Fresno points are typical of the latter portion of the Late Prehistoric period (Turner and Hester 1985:174), and glass beads were not introduced until after the arrival of European traders (post-A.D. 1600). Since site 41DT111 provided the only evidence of occupation from the Protohistoric period, marked by rapid cultural change, additional work was scheduled during the intensive investigations phase.

Prior to planning additional excavations at 41DT111, a magnetic survey was conducted in an attempt to locate hearths and burned areas over a 20 x 20 m (65.6 x 65.6 ft) block, which was laid out with Units 13 and 16 in its center. A permanent datum (N0 E0) was established at the southeast corner of Unit 13, and the coordinates for the four corners of the 20 x 20 m block were N10 W5, N10 E15, S10 E 15, and S10 W5 (Figure 3-12). The site proved to be magnetically quiet. Only a single small anomaly was observed. Therefore, the results of the magnetic survey were not used to plan the locations of excavation units. Instead, a systematic sampling approach was adopted in which a total of thirty-five 50 x 50 cm (19.68 x 19.68 in) units (Units 23-44) were excavated at 5 m (16.4 ft) intervals across the 20 x 20 m block.

Each test unit was hand excavated down to clay, and most of the matrix was dry screened through 6.4 mm (0.25 in) mesh. In an attempt to recover any small beads that may be present, one 10 liter sample of fill from each unit was water screened through 1.6 mm window screen mesh. However, no beads or other Protohistoric diagnostics were found. In fact, many of the units were completely devoid of artifacts; only Units 25-31, 37, 38, and 41-43, yielded artifacts. Although artifact density was highest in Unit 41, it was still extremely low. Additional 50 x 50 cm (19.68 x 19.68 in) units were dug at 2.5 m (8.2 ft) intervals in between the units already excavated to

obtain a larger artifact sample. These additional units (Units 45-58) were placed in the area surrounding Units 13 and 16 in the hope that additional beads or other Protohistoric artifacts would be recovered. Unfortunately, only Units 45-50 yielded artifacts, and the only diagnostic artifact recovered was a sherd decorated with a curvilinear design found in Unit 46.

The artifacts recovered from both test excavations and intensive investigations phase excavations are listed together in Table 3-4. In addition to the Fresno point, an untyped straight stemmed dart point was recovered from Unit 7. Other identifiable tools included: one arrow point preform, one end scraper, one sidescraper, one aborted biface (i.e., discarded late in the reduction process) made from chert, three marginally modified unifaces with straight-to-convex working edges (one made from silicified wood), and one marginally modified uniface with a concave working edge. Almost half of the identifiable tools were recovered from four testing phase units excavated on top of the terrace, accounting for only 7% of the units dug at the site. Within the 20 x 20 m block excavated along the northwest slope, the majority of cultural material was comprised of ceramic sherds.

The ceramic assemblage totaled 133 sherds, including eight rims, 123 body sherds, and two bases. Most sherds were recovered from 50 x 50 cm (19.68 x 19.68 in) units excavated across the top of the landform or along a small area of the northwest slope near where a glass trade bead and a Fresno type arrow point had been found (see Figure 3-12). The spatial dispersion of ceramics is low, ranging from 4.72 sherds/m² and averaging only 13 sherds/m² in test units which contain ceramics, and 8 sherds/m² in the vicinity of the find spots of the bead and arrow point. In addition to the ceramics, 11 pieces of burned clay were recovered from the site. One of these from Unit 40 had impressions, possibly indicating use in a structure of some kind.

Grog and small grog tempered pottery comprised 43.6% and 36.8%, respectively, of the ceramic assemblage. Bone tempered wares account for 9.7%, grit tempered 5.3%, and coarse grog tempered only 4.5%. The proportions of the different wares are fairly similar to the much larger assemblage from 41DT124, the Doctors Creek site (see Chapter 7), but at this point it is uncertain if the relative frequencies of different wares had any chronological significance at Cooper Lake.

The grog tempered pottery includes three rims, two bases, and 43 body sherds. Most of the grog tempered wares are plain, but about 17% are smoothed or burnished on exterior and interior surfaces. Decorated pieces are represented by a cross-hatched incised rim, and parallel engraved, engraved "ladders", and engraved triangles on

TABLE 3-4

Summary Of Artifacts By Class From Site 41DT111

Unit	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Ceramics	Baked Clay	Charcoal	Burned Rock
Surface	—	—	—	—	—	2	—	—	—
1	—	—	—	1	—	—	—	1	—
3	—	—	—	4	—	2	2	—	—
4	—	—	—	4	—	9	—	—	—
5	—	—	—	3	—	5	5	—	—
6	—	—	—	7	—	—	—	—	—
7	1	—	1	33	1	18	1	—	7
8	—	—	—	5	—	—	—	—	—
11	—	1	—	1	—	2	—	—	—
13	1	1	—	4	—	12	—	—	—
16	—	—	—	6	—	1	2	1	—
19	—	—	1	1	—	3	—	—	—
20	—	—	—	2	—	6	—	—	2
21	—	—	—	10	—	10	—	—	3
22	—	—	—	10	—	2	—	—	—
23	—	—	—	2	—	—	—	—	—
25	—	—	—	2	—	1	—	—	—
26	—	—	—	1	—	3	—	—	—
28	—	—	—	3	—	1	—	—	—
29	—	—	—	1	—	—	—	—	—
30	—	—	—	6	—	1	—	1	—
31	—	—	—	—	—	1	—	—	—
32	—	—	—	—	—	—	—	1	—
34	—	—	—	1	—	—	—	—	—
38	—	—	—	3	—	1	—	—	—
40	—	—	—	—	—	—	1	—	—
41	—	—	—	2	—	2	—	—	1
42	—	—	—	—	—	3	—	—	—
43	—	—	—	1	—	3	1	—	—
44	—	—	—	5	—	2	—	—	—
45	—	—	—	8	—	1	1	1	—
46	—	—	—	2	—	2	—	—	—
47	—	—	2	1	—	1	—	1	—
48	—	—	1	8	—	8	—	2	3
49	—	—	—	3	—	1	—	—	—
50	—	—	—	2	—	1	—	—	1
52	—	—	—	4	—	1	—	—	—
53	—	—	—	9	—	8	—	1	1
54	—	—	1	2	—	1	—	1	1
55	—	—	—	2	—	—	1	1	—
56	—	—	—	—	—	1	—	—	—
57	—	—	—	2	—	1	—	—	—
58	—	—	—	—	—	1	—	—	—
Total	2	2	6	161	1	117	14	11	19

body sherds of bowls or carinated bowls. Although the sherds and decorative motifs are quite small, they are quite similar to engraved decorative elements identified in the Middle Caddoan component at the Hurricane Hill site (Pertulla 1988: Figure 5-49). The engraved "ladder" may be from Poyner Engraved (see Suhm and Jelks 1962: Plate 62).

The grog tempered rims are standing and direct with flat (66.7%) and rounded lips. Two of the three rims are plain and probably derive from undecorated simple bowls. The bases are flat, but are thicker than the side walls. They average 10.95 mm, with a range of 9.5-12.4 mm, in thickness. Body and rim sherds for the grog tempered wares have a mean thickness of 7.5 ± 1.0 mm, and a range of 5.0-10.1 mm. There is a unimodal distribution in the thickness of the grog tempered wares, and thus there is no clear dichotomy in the present sample between the different vessel types (i.e., jars and bowls) in overall thickness.

The grog tempered wares from 41DT111 have a medium, compact texture and paste which is relatively homogenous in composition. Additional aplastics include bone (17.2%), grit (1.7%), and organic materials (3.4%). Abundant organics in the paste, which become carbonized in firing but were not totally combusted, were noted at Hurricane Hill (Pertulla 1988: Table 5-45) and 41HP137 (see Chapter 8).

The small grog tempered pottery is represented by one rim and 48 body sherds. The rim has a rounded lip, but the rim orientation could not be determined because of its small size. None of the sherds were decorated, but 12.4% were burnished, and another 8.2% were covered with a slip (red and brown colors after firing) on interior and exterior surfaces. Since these sherds are body sherds, they cannot be assigned a typological label. Body and rim sherds for the small grog tempered wares have a mean thickness of 6.3 ± 1.2 mm, and a range from 4.2-9.0 mm. The majority of the sherds are less than 6.0 mm, with a mode of 6.0 mm.

Because most of the sherds are rather small from 41DT111, and rim sherds are uncommon, the majority of sherds were not identified as to their vessel type. Only bowls were identifiable in the few sherds which could be categorized by vessel type (see below).

In addition to the fine and compact grog tempers in the small grog tempered wares, bone, grit, and organic materials are intentional (especially in the case of the organic materials) additions to the paste. Bone (10.2%) is most common, followed by organic materials (8.2%) and grit tempered (6.1%).

The bone tempered plain pottery is represented by three rims (probably the same vessel) and 10 body sherds.

The rims are direct and standing with flat lips, and come from a bowl. A single body sherd is burnished on the exterior surface. Mean thickness of the bone tempered wares is 6.7 ± 1.4 mm with a range of 5.0-9.1 mm. Bowls and a single bottle are present in the collection. Although crushed bone is the primary constituent of the paste, grog is added as an aplastic in 15.4% of the sherds for this ware.

One rim and six body sherds comprise the grit tempered wares. The rim has a rounded lip, but its orientation could not be determined because of its small size. It is decorated with a cross-hatched incised motif. The body sherds are plain; half of the body sherds are burnished on the exterior surface. Grit tempered burnished pottery may be classified as LeFlore Plain (Brown 1971:58). Bowls and jars are represented in the grit tempered wares. The mean thickness of the grit tempered pottery is 6.1 ± 0.8 , with a range of 4.9-7.8 mm. The jar is represented by the thickest sherd. Finely crushed rock (primarily hematite) is the predominant aplastic used in the paste, but bone is added to 28.6% of the sherds.

The final ware represented is the coarse grog tempered wares. This ware includes six plain, unburnished body sherds probably from utility jars and bowls. The coarse grog tempered pottery is thicker (8.1 ± 1.2 mm) on average than all the other wares and at least some of it may be classified as Williams Plain (Brown 1971). In addition to the coarse grog, bone (33.3%), hematite (16.7%), and bone/grit (18.7%) were other aplastics identified in the assemblage.

The few sherds which were decorated mostly resembled Caddoan sherds dating ca. A.D. 1000-1400+ in other Cooper Lake contexts, but whether this same date accurately applies to 41DT111 is uncertain. If the date suggested by these sherds is reasonable, then the contextual association between the ceramics, Fresno point, and the glass bead is a secondary non-cultural one, and thus the ceramic assemblage is not part of a Protohistoric occupation.

The glass trade bead found in Unit 16 was made from opaque white, porcelain-like glass. It was ovoid or olive-shaped and measured ca. 11.15 mm long by 7.8 mm wide at its widest points. Opaque white was one of the five most popular colors of trade beads along with red, blue, yellow, and green (Orchard 1929:95). The large size of this bead suggests that it was part of a necklace rather than part of a decorative motif applied to hide or cloth (Orchard 1929:95). It is identical to Type 1 beads found at Norteño focus sites such as the Gilbert site (Harper et al. 1967) and the Womack site (Harris et al. 1965). Both of these sites are within 65 km (40.4 mi) of 41DT111;

Womack was located on the Red River to the north and Gilbert was along Lake Fork Creek to the south. The beads at Womack appeared to be manufactured between A.D. 1700-1730 (Harris et al. 1965:360), whereas those at Gilbert were of styles attributed to A.D. 1740-1770 (Harper et al. 1967:104). LaHarpe's Fort on the Red River was apparently the source of trade goods at the Womack site. If the inhabitants of site 41DT111 were from the north or had trade access, then the Type 1 bead from 41DT111 may date from the same period as Womack. Based on the date ranges for nearby Protohistoric sites with similar beads, it is likely that this bead was deposited during an occupation occurring sometime between A.D. 1680-1770.

The final excavation at 41DT111 was conducted during the intensive investigations phase. Over 7.5 m² of the area containing the bead and pottery were hand excavated (i.e. over 25 units). Heavy equipment was then used to remove overburden between units near the location of the glass bead, in an attempt to uncover subsurface features such as post molds. A single transect ca. 3 m (9.8 ft) wide and 15 m (49.2 ft) long was stripped and shovel shaved in an east-west fashion just north of the site datum (Figure 3-12). However, no features were encountered within these areas. Additional pottery fragments were encountered, but no specific concentrations were identified. A check of backdirt piles after major rains did not reveal any other Protohistoric materials.

Few conclusions concerning the prehistoric occupants occupying 41DT111 could be reached, since this is the only site of its type presently known in the reservoir. The presence of arrow points and ceramics indicated that a Late Prehistoric period occupation was responsible for most of the archaeological deposit. The presence of a Type 1 glass trade bead and Fresno arrow point suggest that the northwest part of the site may have been used, albeit briefly, during the Protohistoric period. Unfortunately, artifact frequencies were low, and resulting SYMAPs were not helpful for making interpretations about the nature of occupation.

Based on the limited quantity of artifacts and no visible midden, it is apparent that relatively short term occupations were responsible for the archaeological deposit.

41DT112

This site was recorded during the 1987 survey as site T125, and was later assigned the state trinomial 41DT112. It is situated on top of a low upland hill, or high Pleistocene terrace, ca. 150 m (492 ft) south of

Doctors Creek; eroding out of the road cut on both sides of the road running south from Cooper to Harper's Crossing. Site elevation ranged between 128.6-131.1 m (422-430 ft) amsl. Harper's Crossing is about 3.1 km (1.9 mi) south-southeast of the site, and the Doctors Creek site (41DT124) is only 100 m (32.8 ft) to the northeast. The soil is mapped as the Freestone-Hicota complex (Ressel 1979). The western site boundary could not be determined because it fell outside of the survey area and was only briefly examined. Within the study area, scattered artifacts extended ca. 45 m (147.6 ft) north-south in the road and ca. 20 m (65.6 ft) east into the pasture.

Subsurface investigations during the 1987 survey included shovel tests spaced at 10-15 m (32.8-49.2 ft) intervals. During the survey, ca. 10 shovel tests were dug along the terrace surface east of the road to determine site boundaries. However, none of the shovel tests yielded cultural materials. The only artifacts found consisted of flakes eroding out of the road cut. During the light testing program, seven 50 x 50 cm (19.68 x 19.68 in) units were dug at 20 m (65.6 ft) intervals within the pasture parallel to the road (Figure 3-13). Each test unit was hand excavated down to clay, and the matrix was dry screened through 6.4 mm (0.25 in) mesh. The results demonstrated that this site is an extremely sparse lithic scatter. Unit 3 yielded one flake and Unit 6 contained four flakes. All other units were devoid of cultural materials.

On top of the landform, site stratigraphy consisted of an A horizon comprised of a grayish brown, sandy loam 17-36 cm (6.7-14.2 in) thick overlying a yellowish brown, sandy loam down to about 50 cm (19.68 in). Below 50 cm, a mottled orange and gray, sandy clay B horizon was encountered. Downslope the stratigraphy consisted of grayish brown sandy loam 5-28 cm (1.97-11 in) thick overlying a reddish brown sandy clay B horizon.

The complete lack of diagnostic artifacts precluded assignment of this site to a particular time period or cultural group. The virtual absence of artifacts indicated that the occupation was extremely short term. It is possible that the site was a lithic workshop associated with the major occupation at nearby 41DT124, the Doctors Creek site, or with the small prehistoric component at nearby 41DT126, but this is speculative. No firm conclusions can be reached at this time.

41DT113:

The John C. Wright Site

Site 41DT113 is located on a large terrace ridge overlooking the floodplain of Doctors Creek. The site area is ca. 100 m (328 ft) north of where a meander bend

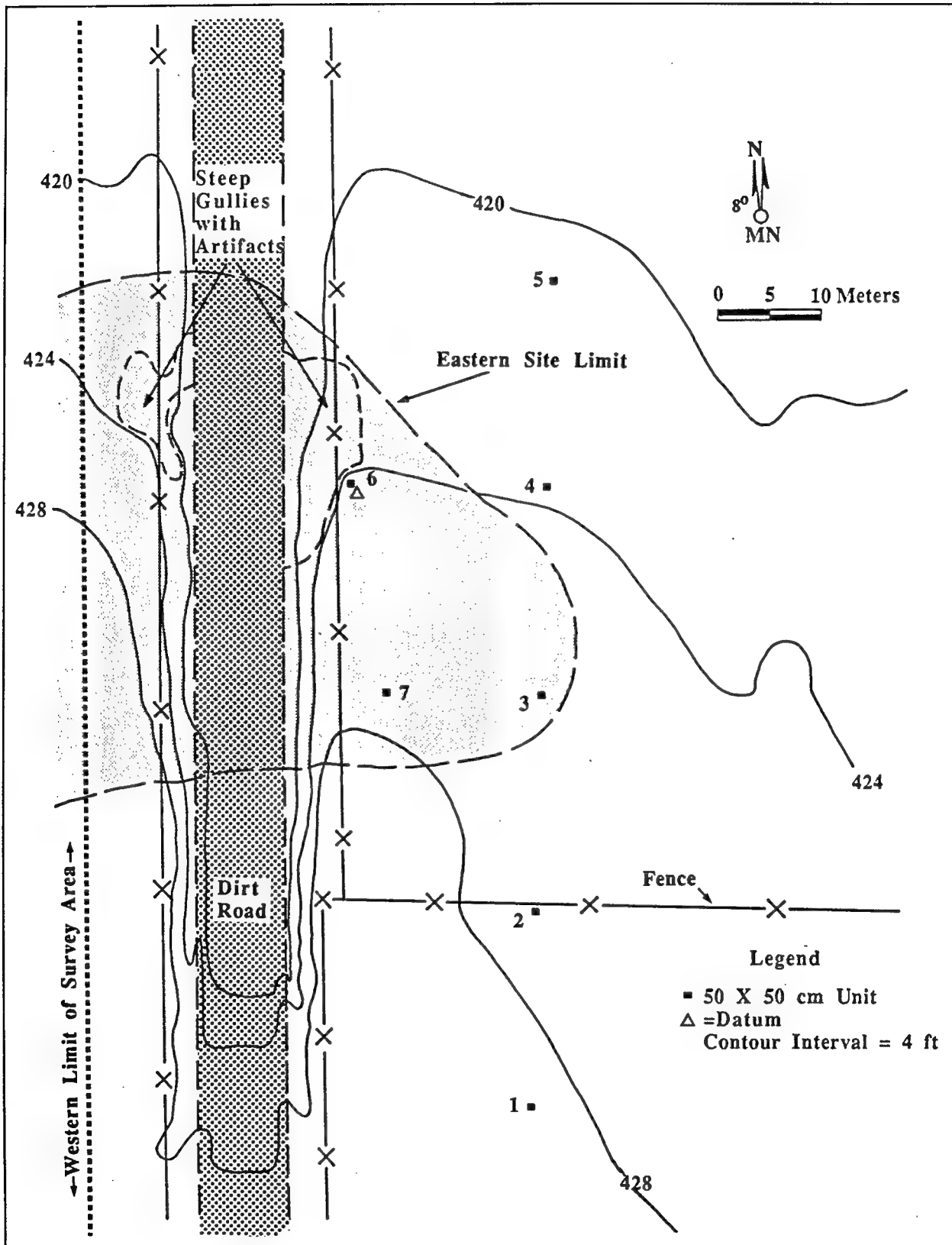


Figure 3-13. Location of excavation units at site 41DT112.

of the Doctors Creek channel was actively eroding the southern end of this landform. Elevations within the site area ranged between 129.8-130.8 m (426-429 ft) amsl, and the soil association is Annona loam. This prairie soil has a dense ground cover of grasses, and a few small cedar trees and two pecan trees are present along the site's southern edge. A large stock tank was constructed in the western portion of the site, disturbing the deposit there and leading to subsequent erosion along the western slope of the site.

The site was initially recorded during the 1987 survey on the basis of surface artifacts found in the disturbed area around the stock tank. At that time, several shovel test units were excavated across the ridge in an attempt to delineate the spatial limits of the artifacts. Both historic and prehistoric components were recognized on the basis of the surface artifacts.

Documentary research performed for all of the Embankment area revealed that this location could be one of the former home sites of John C. Wright, who may have occupied it briefly sometime in the early 1850s. Additional test excavations were later performed by both prehistoric and historic archaeology crews. The results of the historic investigations and artifact analysis are presented in Chapter 12. The historic data recovery was performed on a 2 m (6.7 ft) grid, and produced possible evidence of Late Prehistoric occupation. Table 3-5 includes all prehistoric data from the historic excavations.

The limited prehistoric test excavations consisted of sixteen 50 x 50 cm (19.68 x 19.68 in) units placed along the higher elevations of the terrace ridge (Figure 3-14). The fill removed from each of these test units was hand excavated and sifted through 6.4 mm (0.25 in) screens. Prehistoric artifacts were most numerous from units placed on the very crest of the ridge (Table 3-6). In fact, Units 7 and 16 together contained over half of the total lithic debitage and over 90% of all fire-cracked rock recovered from the initial 50 x 50 cm (19.68 x 19.68 in) unit excavations. About 50 m to the southeast of these two units, a relatively minor but spatially separate artifact concentration was detected within Units 14 and 15. The density of prehistoric artifacts was very low in all other tested portions of the site.

It was this overall low artifact density, as well as the lack of faunal remains, that most strongly influenced the recommendation of no further work for the prehistoric component at 41DT113. The recovery of diagnostic early historic artifacts from several of the 50 x 50 cm (19.68 x 19.68) units did, however, indicate that the site offered better potential for historic archaeological research. The historic field crew returned to the site and excavated a total of ninety-nine 50 x 50 cm (19.68 x 19.68 in) units

within an area that was thought to be the location of an early house site (Figure 3-14). The considerable number of aboriginal artifacts, including arrow points, recovered from these units provided additional information about the prehistoric components.

As was the case at most other prehistoric sites, debris created during lithic tool production accounted for the bulk of the recovered artifact assemblage. This included 684 pieces of lithic debitage along with six cores or core fragments (Table 3-5). The 280 fragments of fire-cracked rock represented the next most abundant artifact class, and their spatial distribution correlated very closely with that of the debitage. The historic crew's excavations identified a third area of relatively high artifact density and in association with arrow points, that had not been detected previously. This artifact concentration measured ca. 8 m (26.2 ft) in diameter, centered around the S200/E200 grid coordinate (Figure 3-14).

The total of 12 projectile points included seven dart points and five arrow points. Two of the arrow points are not classifiable because of their fragmentary condition, but two Alba specimens and one Scallorn specimen are classifiable. Six of the seven dart points are of the contracting stem Gary type. The remaining dart point has a short, and relatively broad, expanding stem that was formed by side notching. These side notches and the slightly concave base of the specimen are ground smooth. It seems to indicate a component that was considerably earlier than those that produced the Gary dart points and the arrow points.

Other bifacial artifacts include six aborted specimens and eight small fragments with bifacially worked edges. The aborted bifaces appear to be unfinished tools that were discarded during the manufacturing process, and all six of the recovered specimens are in a relatively advanced stage of reduction, suggesting a tool kit refurbishing site. The 32 unifacial tools are all marginally modified pieces of lithic debris with rows of small retouch flake scars along one or more lateral edges. Notable in their absence from any of the test units are aboriginal ceramics and faunal remains. Occupation at the site during the ceramic periods is indicated by the recovery of arrow points, and these two artifact classes are usually associated at other excavated sites. The complete lack of faunal remains at 41DT113 may be due to poor preservation or to the activities carried out at the site during occupation.

Potential impacts to this site could result either in its destruction by borrow pit construction or inundation by the conservation pool of Cooper Lake. The considerable amount of excavation already conducted at the site has demonstrated that the prehistoric assemblage represents

TABLE 3-5

Summary Of Prehistoric Artifacts By Class From Site 41DT113

S	Unit E	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Burned Rock
190	200.5	—	—	—	8	1	—
200.5	210	—	—	—	2	—	—
200	190	1	—	—	11	—	—
200	180	—	—	—	5	—	—
190	190	3	4	—	27	—	36
220	210	—	1	—	4	—	—
210	210	—	—	—	1	—	—
220	220	—	—	—	2	—	1
180	180	—	—	—	2	—	—
170	150	—	—	—	2	—	—
220	230	—	—	1	18	—	2
230	230	—	1	—	5	—	—
189.5	189.5	—	1	1	35	1	19
190	192	1	—	2	22	1	13
190	204	—	—	—	3	—	—
194	192	—	—	2	9	—	2
194	196	—	—	1	10	—	—
194	200	—	—	—	2	—	1
194	204	—	—	—	2	—	—
194	208	—	—	—	2	—	—
194	212	—	—	—	1	—	—
198	196	—	—	—	6	—	8
198	200	1	—	3	17	—	—
198	204	—	—	1	2	—	—
198	208	—	—	—	4	—	—
198	212	—	—	1	3	—	—
202	192	—	—	—	6	—	—
202	196	—	—	1	13	1	7
202	200	—	1	2	22	1	10
202	204	1	—	—	11	—	1
202	208	—	—	—	2	—	1
202	212	—	—	—	1	—	—
206	200	—	—	1	6	—	—
206	204	1	—	—	6	—	1
206	208	—	—	—	2	—	—
210	204	—	—	—	1	—	—
192	202	—	—	—	6	—	1
192	204	—	—	—	6	—	—
192	206	—	—	—	2	—	—
194	202	1	—	—	9	—	—
196	202	—	—	—	4	—	1
196	204	—	—	—	5	—	—
196	206	—	—	—	1	—	—
198	202	—	1	1	6	—	1
198	206	—	—	1	2	—	3
200	204	—	—	—	18	—	8
202	202	—	—	—	23	—	19
204	202	—	—	1	10	—	3

Table 3-5 (cont.)

S	Unit E	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Burned Rock
204	204	—	—	—	5	1	7
204	206	—	1	—	8	—	2
206	207	—	—	—	6	—	—
184	206	—	—	—	2	—	—
186	192	—	—	—	5	—	2
186	198	—	—	—	3	—	—
186	200	—	—	—	5	—	—
188	198	—	—	—	6	—	—
188	200	1	—	—	—	—	—
188	202	—	—	—	2	—	1
190	196	—	—	1	8	—	—
190	198	—	—	1	22	—	8
190	202	—	—	—	3	—	—
192	198	—	—	1	9	—	7
192	200	—	—	—	4	—	2
192	208	—	—	—	14	—	1
194	206	—	—	—	1	—	—
200	202	—	2	—	25	—	28
202	198	—	—	1	7	1	7
204	198	—	—	1	11	—	—
206	198	—	—	—	1	—	—
196	200	—	1	1	12	—	—
200	200	—	—	—	14	—	21
200	206	—	—	—	3	—	4
201.5	206	1	—	1	5	—	2
201.5	206.5	—	—	—	10	—	1
202	206	—	1	—	8	—	—
202	206.5	—	—	—	7	—	1
204	200	—	—	1	21	—	21
196	198	—	—	—	4	—	1
198	198	—	—	—	6	2	—
200	198	—	—	3	26	1	21
	Fea. I	—	—	1	9	—	—
	Fea. I	—	—	1	22	—	5
Total		11	14	32	661	9	280

a mixture of several components dating to the Archaic and Late Prehistoric periods. The remains of these multiple components occurred together within a relatively shallow site deposit. For this reason, 41DT113 is believed to offer limited prehistoric research potential.

41DT114

Site 41DT114 is located on a small knoll at the south end of a low ridge that extends into the floodplain of Doctors Creek. The channel of Doctors Creek is less than

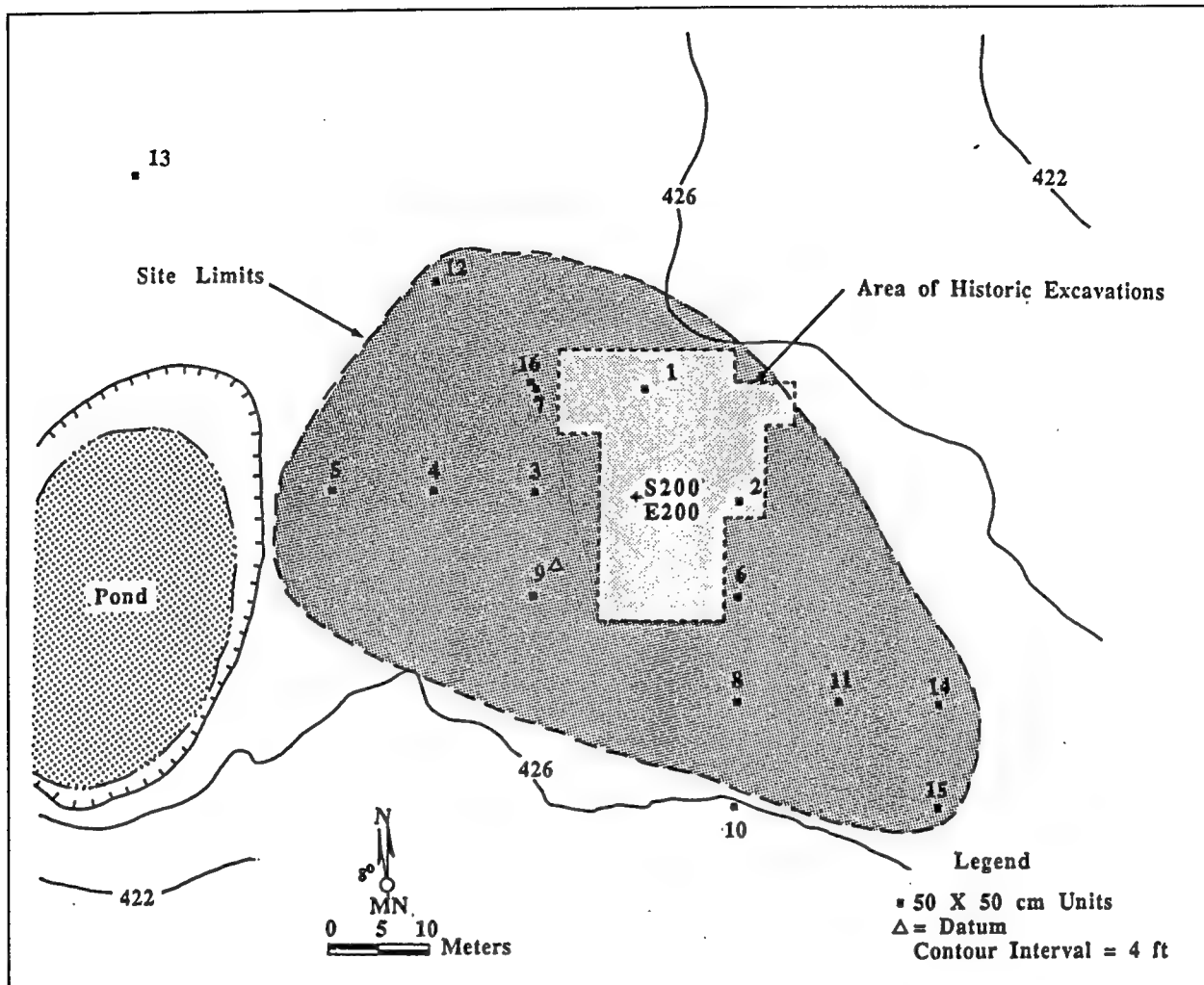


Figure 3-14. Location of excavation units at site 41DT113.

20 m (65.6 ft) west of the site. A small erosional gully and a slough are present along the southwest and south edges of the knoll. The soil forming the low ridge is mapped as Benklin silt loam while the adjacent floodplain is Kaufman clay. Much of the site area is cleared and in pasture. The edges of the knoll and the adjacent floodplain are densely wooded. The site surface varies between 122.8-123.7 m (403-406 ft) amsl in elevation.

The site was discovered during the systematic shovel testing of high potential site areas as part of the 1987 survey. The three southernmost units spaced at 20 m (65.6 ft) intervals along one transect each yielded a single piece of lithic debitage. At that time, eight additional shovel test units were excavated in an attempt to define the spatial limits of the site (Figure 3-15). Each of these shovel tests was 30 cm (11.8 in) in diameter and was excavated in a single vertical level. Their fill was

carefully troweled through in search of artifacts, but was not screened. The base and stem portion of an Angostura projectile point was found on the surface of the small erosional gully at the southwest edge of the knoll. Seven 50 x 50 cm (19.68 x 19.68 in) units were subsequently excavated to further evaluate the site's subsurface contents. Each test unit was hand excavated and all fill was screened through 6.4 mm (0.25 in) hardware cloth. The sandy loam A horizon was found to be very shallow in the northern part of the site (5 cm in Unit 7). No artifacts were recovered from Unit 7 (Table 3-6). The units excavated on the small knoll to the south exhibited an upper zone of clay loam about 5 cm thick capping ca. 20 cm (7.9 in) of sandy loam. This was, in turn, underlain by a mottled sandy clay B horizon. Artifacts were confined to the sandy loam zone, suggesting that the upper clay loam zone represents a post-occupation deposit.

TABLE 3-6

Summary Of Artifacts By Class From Site 41DT114

Unit	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Ceramics	Burned Rock
1	—	—	—	4	—	—	—
2	—	—	—	17	—	—	—
3	—	2	2	20	2	—	11
4	1	1	2	29	1	—	2
5	—	—	—	3	1	—	—
6	—	—	—	10	—	1	2
W2	—	—	—	2	—	—	—
E1	—	—	—	1	—	—	2
S1	—	—	—	1	—	—	1
Total	1	3	4	87	4	1	18

A single backhoe trench was excavated to investigate the stratigraphic relationship between the Kaufman clay that covered the floodplain and the presumably older sediments of the knoll. This trench measured 12 m (39.4 ft) in length and was excavated from the southwest edge of the knoll to within 6 m (19.7 ft) of the Doctors Creek channel. Along the edge of the knoll, a thin (10 cm [3.9 in]) layer of Kaufman clay lies directly on top of the apparently truncated B horizon. At a distance of four meters from the far end of the trench, this B horizon lenses out and the floodplain clay lies directly on top of a gray silty sand with iron staining and calcium carbonate concretions. This appears to be a truncated C horizon and these same sediments underlie the B horizon of the knoll.

Despite the recovery of one flake from each of the initial shovel test units located at the north end of the site, the 50 x 50 cm (19.68 x 19.68 in) unit (Unit 7) placed between them contained no artifacts. Artifact recovery was more productive on the small southern knoll, although artifact density at this site was relatively low overall (Table 3-6). Apart from lithic debitage (87 pieces) and fragments of fire-cracked rock (18 pieces), the five core fragments comprises the most abundant artifact class. The few lithic tools include a blade fragment of a dart point and two aborted bifaces. The unifacial tools consist of three marginally modified flakes and a single steeply chipped, sidescraper. No faunal remains were

recovered from the excavations, and a single undecorated ceramic sherd from Unit 6 is the only temporally diagnostic artifact from the test units. The ceramic sherd is a plain ware grog tempered body sherd, 7.0 mm thick. It was tempered with finely crushed bone, and was not burnished or smoothed.

In terms of potential impacts, the site may be destroyed during borrow pit construction and will be inundated by the conservation pool of Cooper Lake. Even though artifact density was relatively low and the site was confined to a rather restricted area, multiple occupations are indicated by the diagnostic artifacts. The late Paleo-Indian period Angostura point along with the ceramic sherd suggest brief occupations over a considerable span of time. This fact, as well as the low density of artifacts and the lack of faunal remains, led to the recommendation that no further work is necessary at site 41DT114.

41DT115

This site is situated on the edge of a Pleistocene terrace ca. 100 m (328 ft) south of Doctors Creek. Site elevation ranged between 123.1-125 m (404-410 ft amsl). Harper's Crossing is ca. 2 km (1.2 mi) south of the site, and the South Sulphur River is ca. 650 m (2132.5 ft) to the southeast. The soil is mapped as Benklin silt loam (Ressel 1979). A modern farm road cuts across the east

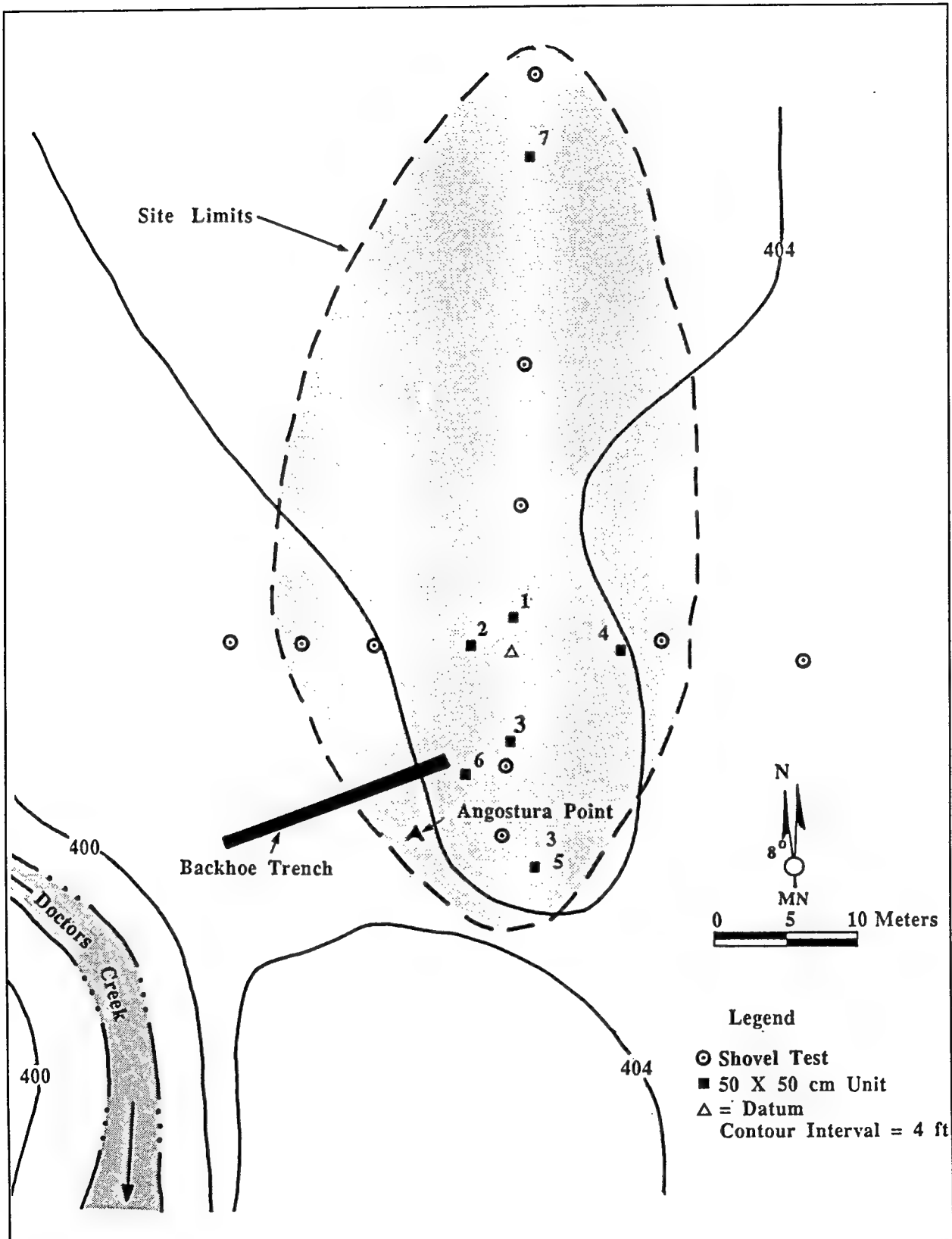


Figure 3-15. Major topographical features and location of excavation units at site 41DT114.

end of the site along the edge of the terrace, and an old county road shown on the 1941 county map bisects the site. A farm road, visible only as a linear break in the trees, extends northeast from the old county road down to the floodplain where it joins the modern farm road (Figure 3-16).

The maximum site extent is ca. 80 x 135 m (262.5 x 443 ft), although most of the prehistoric material was recovered from two concentrations: one downslope in a 30 x 40 m (98.41 x 31.2 ft) area northeast of the site datum, and the other on a higher part of the landform in a 10 x 20 m (32.8 x 65.6 ft) area west of the old county road. A historic component consisting of two depressions and a surface scatter of brick and sheet metal is present over the central portion of the site. Most of the historic material is concentrated in a 30 x 40 m (98.41 x 31.2 ft) area southwest of the permanent datum, bounded on the east by the modern farm road and on the west by the old county road. East of the modern farm road, the only historic remains found were of a relatively recent deer stand constructed from wood and sheet metal.

Subsurface investigations during the survey included shovel tests spaced at 15-20 m (49.2-65.6 ft) intervals. Approximately 15 shovel tests were dug along the terrace on each side of the old county road to determine site boundaries. However, the only shovel tests that yielded cultural materials were within the historic concentration. All prehistoric artifacts found during the survey were surface finds. A concentration of flakes and a biface were found in the modern farm road northeast of the datum, and a cobble was found on the surface west of the old county road. Historic artifacts include only brick and metal; no ceramics or glass were found in shovel tests, whereas all other historic house sites yielded these materials. A local informant, Mr. Kern, stated that a historic cemetery existed on a low hill near the old bridge over Doctors Creek. He said that vandals removed the headstones, and that it is no longer possible to find the graves. Based on this information and the lack of glass and ceramics, it was originally postulated that this site might be the cemetery to which he was referring. During the light testing program, two crews worked simultaneously to test the prehistoric and historic components. The historic crew excavated twenty-two 30 x 30 cm (11.8 x 11.8 in) units (Units H1-H22) at 5-10 m (16.4-32.8 ft) intervals within the central portion of the site, while the prehistoric crew dug six 50 x 50 cm (19.68 x 19.68 in) units (Units 1-6) at 10-20 m (32.8-65.6 ft) intervals in the northeast concentration, and five units (Units 7-11) west of the old county road at 10-30 m (32.8-98.4 ft) intervals (Figure 3-16). Each test unit was

hand excavated down to clay, and the matrix removed was dry screened through 6.4 mm (0.25 in) wire mesh.

The historic investigations were directed toward determining whether or not the site was a cemetery. A reconnaissance of the area soon revealed characteristics commonly found at tenant properties investigated elsewhere in the project area. The large depression represents the remains of a cellar and the small depression a filled in well. A shovel test in the smaller well depression revealed domestic items such as shoe leather, an ironstone churn lid, cast iron, and brick fragments. Unit H22 also yielded items commonly found around households: ironstone and whiteware, nails, bottle glass, and window glass.

The prehistoric work was directed toward defining the spatial limits of the site and the approximate periods of prehistoric occupation. Nearly one third of the test units failed to yield prehistoric artifacts; Units 3 and 4 were devoid of cultural materials, and Units 6 and 10 contained only historic artifacts. The best chronological information was recovered in Unit 1, where a Yarbrough (Archaic period) dart point was encountered. Also in this unit, the clay B horizon was observed at a depth of 11 cm (4.3 in) below surface everywhere except the southeast corner, where it dipped down in a basin-shaped fashion to a maximum depth of 28 cm (11 in) below surface. This pit was labeled Feature 1.

Site stratigraphy varies across the landform. In the northeast prehistoric concentration along the lower slope, stratigraphy is characterized by a dark brown silty loam A horizon from 5-40 cm (2-15.7 in) thick, overlying a reddish brown clay B horizon.

On top of the terrace the sandy deposit was much deeper. The stratigraphic profile of Unit 8 serves as a typical example: dark brown, sandy silt (0-55 cm); over a light brown, sand (55-70 cm); over a light gray, sand (70-75 cm); over a gray clay with red mottling. Historic cultural stratigraphy was observed on top of the landform in 30 x 30 cm (11.8 x 11.8 in) Unit H8 where a 30 cm (11.8 in) thick redeposited lens of mixed A and B horizon soil with charcoal flecks is present on top of the natural A horizon. This unit was adjacent to the small depression believed to represent the well, so the natural ground surface may be buried by the backdirt removed during the well's original excavation.

The discovery of an Archaic period dart point, coupled with a lack of prehistoric ceramics, suggests that the northeast concentration might represent a potentially pure Archaic context. The possibility for locating features that might date to this early period prompted the excavation of larger test units. Three 1 x 1

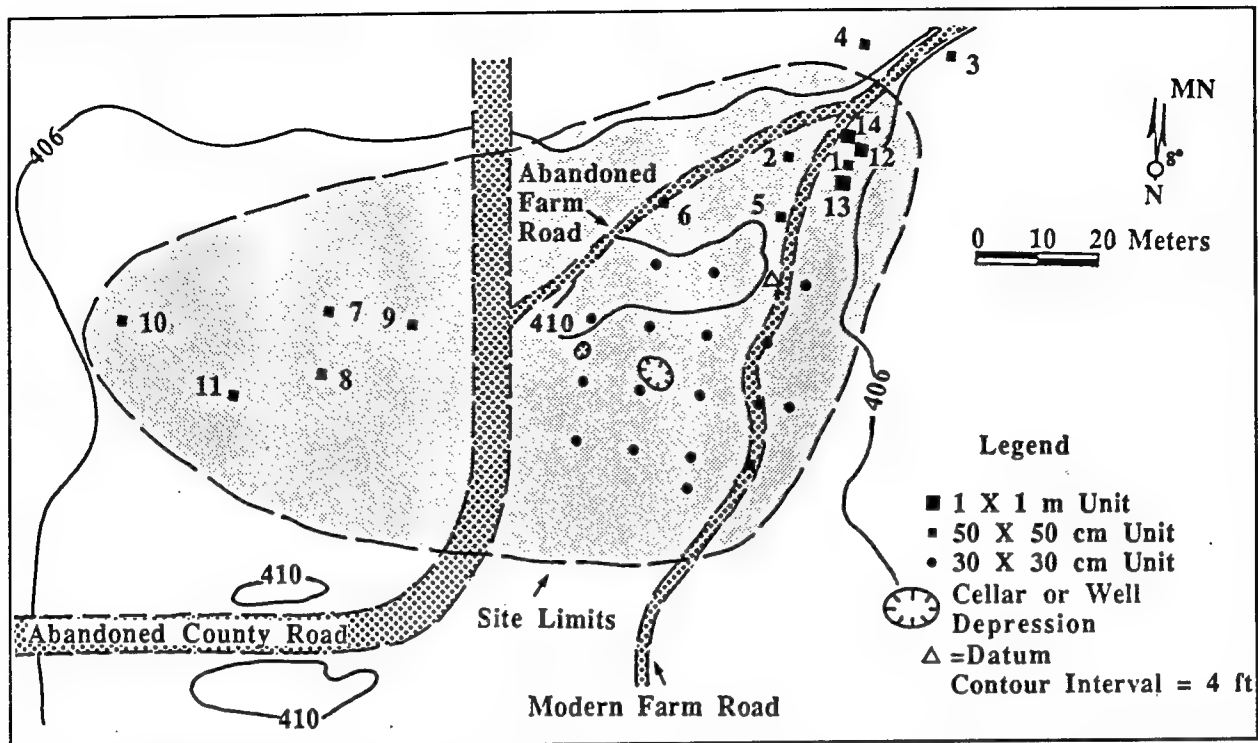


Figure 3-16. Major topographical features and location of excavation units at site 41DT115. Field work addressed both prehistoric and historic components.

m (3.28 x 3.28 ft) units (Units 12-14) were excavated within this portion of the site to obtain a larger artifact sample and to search for additional features. Unit 12 was placed 1 m north of Unit 1, and Unit 13 was excavated 1 m south of Unit 1; Unit 14 was dug adjacent to Unit 12 in order to fully expose a pit feature (Feature 2) which was partially exposed in Unit 12 (Figure 3-17).

Table 3-7 lists the artifacts recovered from the 50 x 50 cm (19.68 x 19.68 in) units and 1 x 1 m (3.28 x 3.28 ft) units at 41DT115. A knife and a dart or drill tip are the only identifiable tool types recovered from the surface. An aborted biface and two marginally modified unifaces with straight-to-convex working edges were recovered from Unit 5. An arrow point preform made from chert and a sidescraper were found in Unit 8. In Unit 12, a side-scraper, a scraper fashioned along the end of a biface, two biface fragments, and two marginally modified unifaces with straight-to-convex working edges were recovered. One marginally modified uniface with a straight-to-convex working edge was found in Unit 13, and in Unit 14, a chert sidescraper, two biface fragments, and a marginally modified uniface with a straight-to-convex working edge were recovered. This assemblage contains an unusually high frequency of scrapers when compared with other assemblages from Cooper Lake. Whether this pattern reflects sampling bias due to small sample sizes or

some actual shift in the use of scrapers over time is not discernable.

Feature 2 was first observed as a dark gray stain extending out of the northwest corner of Unit 12 at a depth of 13 cm (5.1 in). At this depth, the dark gray sandy loam fill was surrounded by yellowish brown sandy loam. The reddish brown clay B horizon was exposed in the eastern 20 cm (7.9 in) of the unit at this depth. The pit extended about 30 cm (11.8 in) into Unit 14, and part of the pit extended outside of the excavation units to the east of Unit 14 and to the north of Unit 12, so the feature was not completely excavated. At its deepest point, Feature 2 was 35 cm below surface. The plan view and profile of this feature are illustrated in Figure 3-17. Flakes and fire-cracked rock were recovered from the fill. The function of the pit is unknown.

A total of 256 historic period artifacts was recovered (Table 3-8), many of which could be dated. Bottle glass in shades of aqua, manganese solarized, brown, white milk, and clear were found, and one aqua jar base had a valve mark dating between 1930-1945. Two pieces of natural clay slipped stoneware (1875-1900) and some ironstone whiteware with floral decalcomania over the glaze (1880-1920) were also found. A 10 gauge *New Club* shotgun shell (1867-1911) was also recovered. The historic period materials suggest that this site was

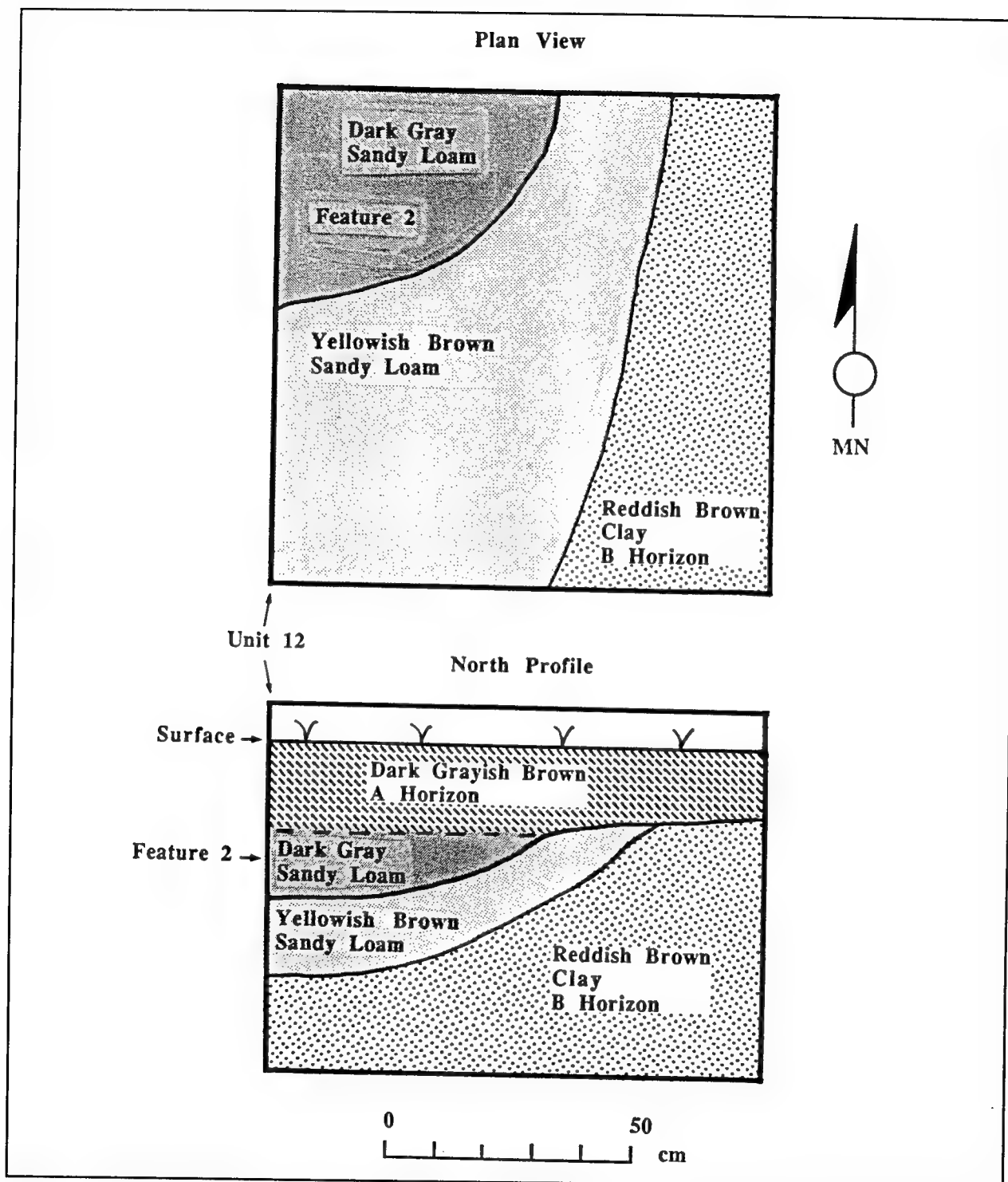


Figure 3-17. North profile and plan view of Feature 2 in Unit 12 at site 41DT115. Scale applies to both views.

occupied by a household during the early twentieth century.

The recovery of an Archaic period dart point and a lack of prehistoric ceramics suggests that this site was

created by Archaic period occupations without subsequent deposition by Late Prehistoric period groups. If so, this is one of the few sites in the area which shows no signs of Late Prehistoric activity. However, despite the

TABLE 3-7

Summary Of Artifacts By Class From 50 x 50 cm Units (#1-11) And 1 x 1 m Units (#12-14) At Site 41DT115

Unit	Level	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Baked Clay	Burned Rock
Surface		—	2	—	1	1	—	—
1	1	1	—	—	6	—	—	—
2	1	—	—	—	2	—	—	—
5	1	—	1	2	35	—	2	12
7	1	—	—	—	2	—	—	—
8	1	—	1	1	28	—	—	13
9	1	—	—	—	18	—	1	3
10	1	—	—	—	2	—	—	—
11	1	—	—	—	1	—	—	—
12	1	—	—	3	37	1	—	11
	2	—	2	—	48	1	—	20
	3	—	1	—	5	1	—	6
	4	—	—	—	1	—	—	—
13	1	—	—	1	10	—	—	2
	2	—	—	—	11	—	—	2
	3	—	—	—	6	1	—	2
14	1	—	1	2	40	1	—	10
	2	—	—	—	19	—	—	—
Total		1	8	9	272	6	3	81

fact that sites from this period are rare, most of site 41DT115 yielded low frequencies of artifacts. Although two features were found, test results indicated that little additional material was present in the units surrounding these features. Based on the low artifact yield and intermixed presence of historic artifacts throughout most of the deposits, no further work is recommended. The importance of this apparent Archaic site is also discussed further in Chapter 10.

41DT116

This site was recorded during the 1987 survey as site T126, and was later assigned the state trinomial 41DT116. It is situated in an upland pasture adjacent to Cannon Creek and is bounded by that creek on the west and an intermittent stream on the east and south (Figure 3-18). Site elevation ranges from 128.0-130.5 m (420-

428 ft) amsl. Liberty Grove Cemetery is about 1.7 km (1.1 mi) southeast of the site, and the city of Cooper is about 3 km (1.8 mi) to the north. The northwest portion of the site is mapped as Annona loam, whereas the remainder of the site is mapped as Benklin silt loam (Ressel 1979). In actuality, the archaeological deposits are confined to the numerous small mounds present within the pasture and exhibit different soil properties than those recorded for either soil type. The precise site limits to the south were not well defined because this area fell outside of the required survey limit. The intermittent stream encompassing the field was selected as a convenient boundary, but the scatter might extend even further south. The area recorded as site 41DT116 measured ca. 160 m (525 ft) north-south and extended ca. 60 m (196.8 ft) east-west.

Subsurface investigations during the survey included 15 shovel tests spaced at 10-15 m (32.8-49.2 ft) intervals.

TABLE 3-8

Summary Of Historic Artifacts By Class
From Site 41DT115

Class	Number
Ceramics	4
Architecture	127
Bottle Glass	42
Table/Lamp Glass	4
Personal	5
Fauna/Flora	2
Firearms	1
Misc. Metal Parts	41
Tin Cans	25
Misc. Other	5
Total	256

During the survey, numerous shovel tests were dug in an attempt to determine site boundaries, but no artifacts were identified in these tests. All cultural materials were found eroding out of a cattle trail crossing a small mound adjacent to the creek. Thus, the site area was originally recorded as 10 x 5 m (32.8 x 16.4 ft). During the light testing program, units were dug along all other rises in the field, and cultural materials were recovered from every rise, prompting a revised estimate of site size. In all, eight 50 x 50 cm (19.68 x 19.68 in) units were dug on top of the mounds at 10-20 m (32.8-65.6 ft) intervals (Figure 3-18). Each unit was hand excavated down to clay as a single level, and the matrix was dry screened through 6.4 mm (0.25 in) mesh.

Site stratigraphy varied somewhat from rise to rise. In Unit 1, the A horizon consisted of a dark brown sandy loam (0-8 cm), over a brown sandy loam (9-45 cm), on top of a reddish brown mottled sand (46-60 cm), overlying a mottled orange and gray clay B horizon. On the next rise to the east, stratigraphy was characterized by a layer of yellowish brown sandy loam on top of a grayish brown sandy loam, overlying a gray clayey silt, on top of a gray clay with red mottling. Depth of each layer varied from unit to unit, with depth to clay ranging from 73 cm (28.7 in) in Unit 2 to 92 cm (36.2 in) in Unit 4. This pattern was approximately the same as that observed in Units 6 and 7, but Unit 8 exhibited a different

stratigraphy marked by a light brown sand down to 70 cm (27.6 in), over a thin lens of white sand from 70-75 cm (27.6-29.5 in) over a gray clay. Unit 3, dug in the low-lying area between the northernmost rises, also had a different stratigraphy characterized by sandy silt down to 28 cm (11 in) overlying a clayey silt.

Artifacts were found in all units except Unit 3 (Table 3-9), although Unit 9 yielded only one flake and Unit 7 contained only three flakes. Unit 1 yielded the highest quantity of artifacts including an untyped, contracting stemmed dart point made from silicified wood, a drill/awl, an aborted biface discarded early in the reduction process, and two marginally modified unifaces with straight-to-convex working edges. Other artifacts include numerous flakes, a few sherds, baked clay, and fire-cracked rock. The vertical distribution of artifacts in some units at 41DT116 suggests that a stratified deposit may exist. For instance, in Unit 6 most flakes were recovered in the upper 25 cm, then a hiatus occurred until 55 cm, where three large flakes were found. This trend toward a hiatus was also recognized at various depths in Units 1, 2, and 7. However, in the remaining units, a continuous distribution of artifacts was recovered all the way down to clay, so clear evidence of stratigraphic separation is lacking.

Four pottery sherds were found in Unit 1 on the northernmost mound at the site. Three types of ceramics are identified as grog tempered plain, small grog burnished, and grit burnished. The grog plain ware includes two body sherds ranging from 7.5-7.9 mm, and the exterior surface of one had been smoothed. These sherds probably come from jars. The 8.3 mm thick grit burnished sherd, possibly LeFlore Plain (Brown 1971:58), contains minor amounts of grog in the paste, and is from a bowl. The small grog burnished sherd is also from a bowl and measured 8.3 mm thick.

The presence of arrow points and ceramics indicates that a Late Prehistoric period occupation was responsible for at least part of the archaeological deposit at 41DT116. The presence of a sherd of LeFlore Plain may indicate that the occupation took place during the Early Caddoan period, ca. A.D. 800-1200. The potential of this site to further an understanding of local prehistory is questionable. No bone or shell was recovered, so it has little potential for contributing to an understanding of subsistence. Any potential for yielding useful information lies primarily in other areas of significance or in geoarchaeological studies. Since there is an inadequate understanding of the formation of these mounds, geoarchaeologists have focused on them (Bousman, Collins, and Pertulla 1988). The archaeological deposits are not overly abundant in tools other than the sample

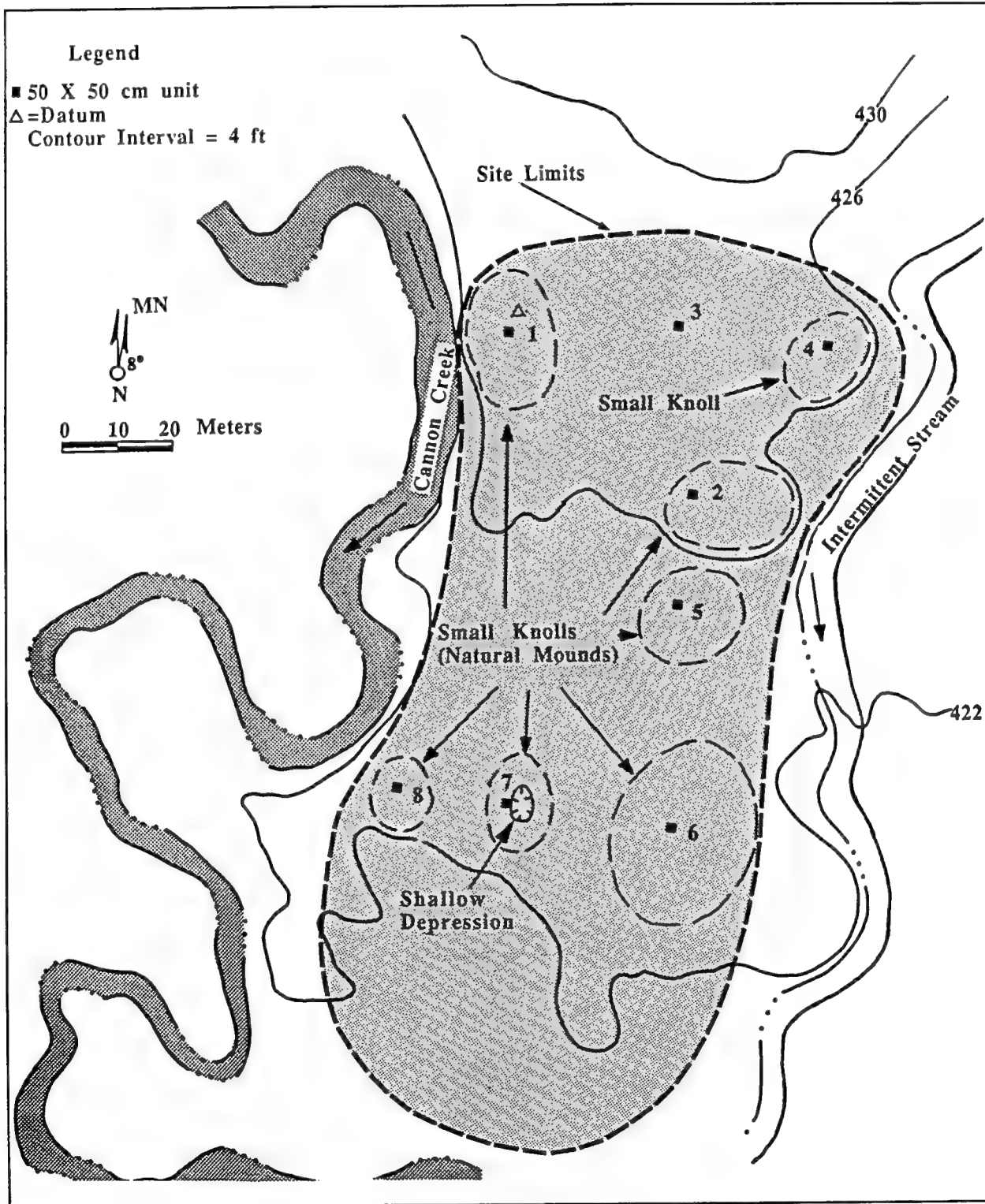


Figure 3-18. Major topographical features and location of excavation units at site 41DT116. Prehistoric artifacts were recovered from the units dug in every knoll shown above.

TABLE 3-9
Summary Of Artifacts By Class From Site 41DT116

Unit	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Ceramics	Burned Rock
1	1	2	2	10	3	4	24
2	—	—	—	40	2	—	2
4	—	—	—	35	—	—	—
6	—	—	—	35	—	—	—
7	—	—	—	12	—	—	—
8	—	—	—	23	—	—	6
9	—	—	—	1	—	—	—
Total	1	2	2	156	5	4	32

from Unit 1. Because this site fell outside of the 1987 study area, no additional work was conducted.

41DT117

This site was recorded during the 1987 survey as site T127, and was later assigned the state trinomial 41DT117. It is situated on the edge of a forested knoll extending east into an upland pasture adjacent to Cannon Creek, and is bounded by Cannon Creek to the west and by the same intermittent stream flowing past 41DT116 to the east (Figure 3-19). A stock tank forms an approximate northern boundary for the site, but the lithic scatter was so sparse toward both the north and the east that it was not possible to define precise limits. Site elevation ranges between 129.2-131.7 m (424-432 ft) amsl. Liberty Grove Cemetery is about 1.8 km (1.1 mi) southeast of the site and the city of Cooper is about 2.9 km (1.8 mi) to the north. The site's soil is mapped as Annona loam (Ressel 1979). The site measures ca. 50 m (164 ft) north-south by ca. 100 m (328 ft) east-west. However, the principal concentration fell in the forest west of the fence line overlooking Cannon Creek and measured ca. 30 m (98.4 ft) north-south by 10 m (32.8 ft) east-west.

Subsurface investigations during the survey included shovel tests spaced at 15-20 m intervals. Approximately 10 shovel tests were dug within the forested portion of the site west of the fence to determine site boundaries. About 15 shovel tests were dug in the area east of the fence and

south of the stock tank, but none of these shovel tests yielded cultural materials. During the light testing program, seven 50 x 50 cm (19.68 x 19.68 in) units were dug at 10-30 m (32.8-98.4 ft) intervals (Figure 3-19). Each unit was hand excavated down to clay and the matrix dry screened through 6.4 mm (0.25 in) mesh. For the most part, depth to clay ranged from 50-60 cm, but in Unit 4, dug in an eroded area, clay was encountered at 20 cm (7.9 in) below surface.

Site stratigraphy varies somewhat from unit to unit. In Unit 1, the A horizon consists of a dark brown sandy loam (0-5 cm) over a brown sandy loam (5-26 cm), over a yellowish brown sandy loam (26-48 cm), over a light gray sandy loam (48-61 cm), ending with a light gray sandy clay (61+ cm). To the east, Unit 6 stratigraphy is characterized by a layer of dark brown sandy loam (0-5 cm), over a gray sand (5-37 cm), in turn overlying a yellow fine sand (37-58 cm), superimposed on a gray clay with red mottling.

Artifacts were found in all units except Units 4 and 5 (Table 3-10). Units 1 and 3 yielded the highest quantity of artifacts including dart points, arrow points, flakes, bifaces, cores, and fire-cracked rock. Identifiable projectile points included two Gary dart points and one broken arrow point missing its base which exhibited blade and barb morphology similar to Alba or Bonham points. Identifiable tool types included four aborted bifaces discarded early in the reduction process, and a marginally modified uniface with a straight-to-convex

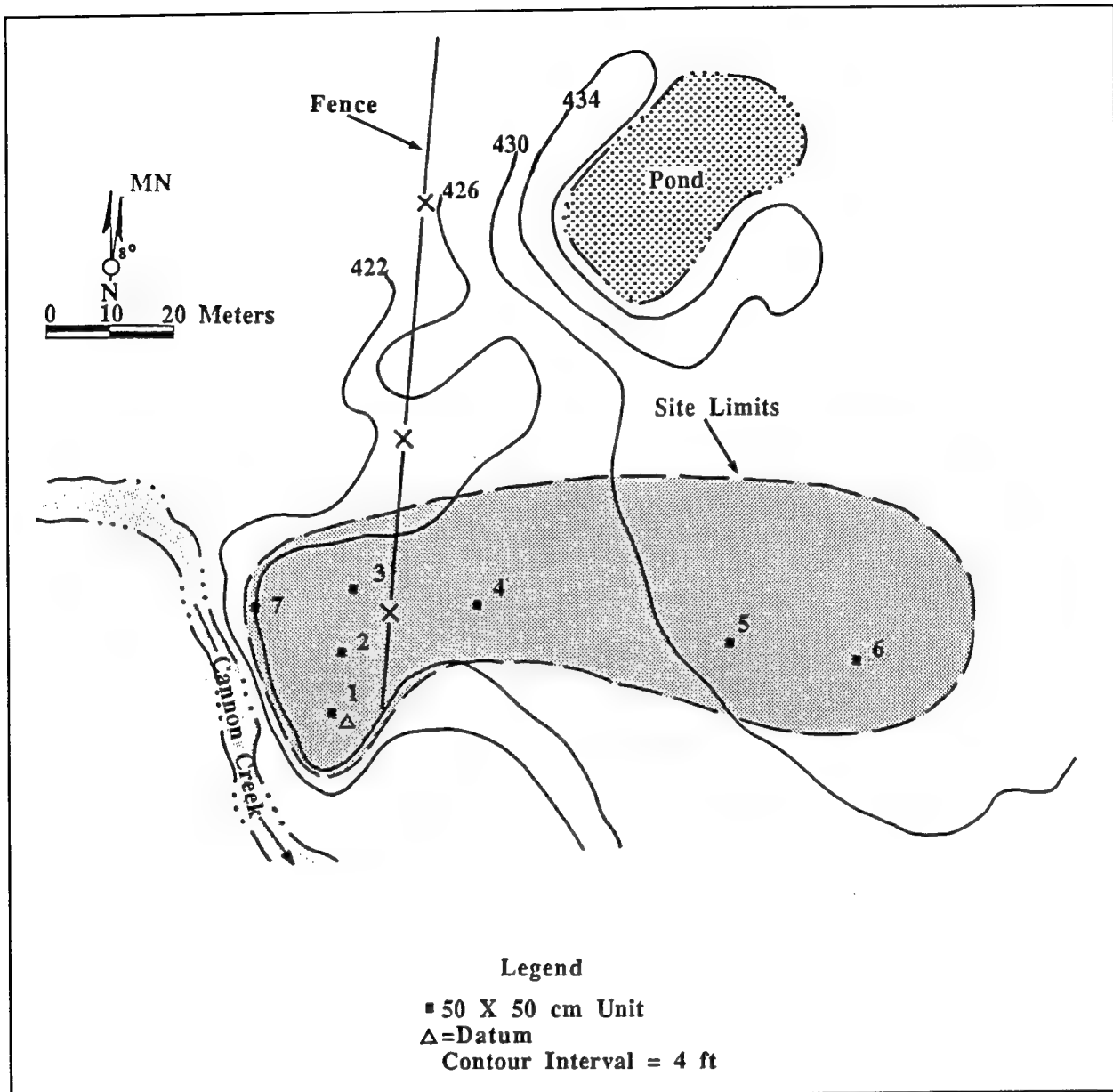


Figure 3-19. Major topographical features and location of excavation units at site 41DT117.

working edge. The vertical distribution of artifacts at 41DT117 indicated that there was no stratified deposit. For instance, in Unit 7 the arrow point was found 10-15 cm below one of the Gary dart points, which in theory should date earlier than the arrow point. Although artifacts were recovered at all depths, most artifacts were concentrated in the upper 30 cm (11.8 in). Thus, it appeared that artifacts had been mixed vertically through natural processes.

The presence of arrow points indicated that a Late Prehistoric period occupation was responsible for at least

part of the archaeological deposit at 41DT117. Artifact density was low, and no bone or shell were recovered, limiting the potential of the site to yield data useful for addressing the research questions outlined in Chapter 1. Based on this and problems with contextual integrity, no further work is recommended.

41DT127

Site 41DT127 is located on a small knoll at the southern edge of a long terrace ridge. The channel of

TABLE 3-10

Summary Of Artifacts By Class From Site 41DT117

Unit	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Burned Rock
1	—	3	3	144	1	46
2	—	1	—	46	—	5
3	1	1	—	173	3	37
6	—	—	—	2	—	—
7	2	—	—	38	—	6
Total	3	5	3	403	4	94

Doctors Creek is ca. 50 m (164 ft) south of the site. A strip of dense woods flanking the creek covers the lower southern and western slopes of the knoll. Most of the knoll was in pasture with a ground cover of grasses and a few small cedar trees on the south slope. The elevation of the site ranges from 125.6-126.5 m (412-415 ft) amsl, and the soil is mapped as Annona loam.

The site was discovered during systematic shovel testing of high potential site areas as part of the 1987 survey. Two consecutive shovel test units at the south end of a transect each yielded a single piece of lithic debitage. These units were located 20 m (65.6 ft) apart on the west side of the knoll (Figure 3-20). A site datum was established on top of the knoll and nine additional shovel test units (30 cm in diameter) were excavated in an effort to define the general limits of the site. The fill from these units was troweled through to check for artifacts but was not screened.

Subsequent investigation of the site occurred in three separate stages. Initial test excavations involved the placement of six 50 x 50 cm (19.68 x 19.68 in) units within the site limits as they were defined by the earlier shovel testing. Later, 37 additional 50 x 50 cm (19.68 x 19.68 in) units were excavated on a 5 m (16.4 ft) interval grid to allow a more systematic evaluation of the site and its intrasite artifact distributions (Figure 3-20). The fill from each of these 50 x 50 cm (19.68 x 19.68 in) units was excavated in a single vertical level and was screened through 6.4 mm (0.25 in) mesh. Seven 1 x 1 m (3.28 x 3.28 ft) units were also excavated in the area of high artifact density to provide a larger artifact sample and to

investigate vertical distributions. These units were dug in 10 cm (3.9 in) vertical levels and all fill again was screened through 6.4 mm (0.25 in) mesh hardware cloth.

This expanded testing at site 41DT127 was undertaken because initial results had indicated that it might date exclusively to the Archaic period with evidence of a probable Middle Archaic component. Archaic period sites had been rare at Cooper Lake and the investigation of an unmixed component from that period was considered to be a top priority. Site 41DT127 was one of four possible single component sites at which expanded testing was conducted to evaluate their relative research potential.

Artifact counts from the systematically placed 50 x 50 cm (19.68 x 19.68 in) units (Table 3-11) demonstrated that the area of highest artifact density was at the very crest of the knoll, mainly east and north of the site datum. The 1 x 1 m (3.28 x 3.28 ft) units were placed in this general area and provided a high proportion of the total artifacts recovered. The sandy loam A horizon varied between 25-40 cm in thickness in this part of the site, indicating that the surface of the clay B horizon was rather uneven. The possibility that this variation in depth to the clay might have resulted from aboriginal activities was also considered. Additional 1 x 1 m (3.28 x 3.28 ft) units were placed adjacent to Unit 9 to provide broader horizontal exposure of what were originally seen as possible shallow pit features. These features were instead found to correspond to irregular undulations in the clay's surface and most likely were the result of natural soil processes. Furthermore, the artifacts were distributed

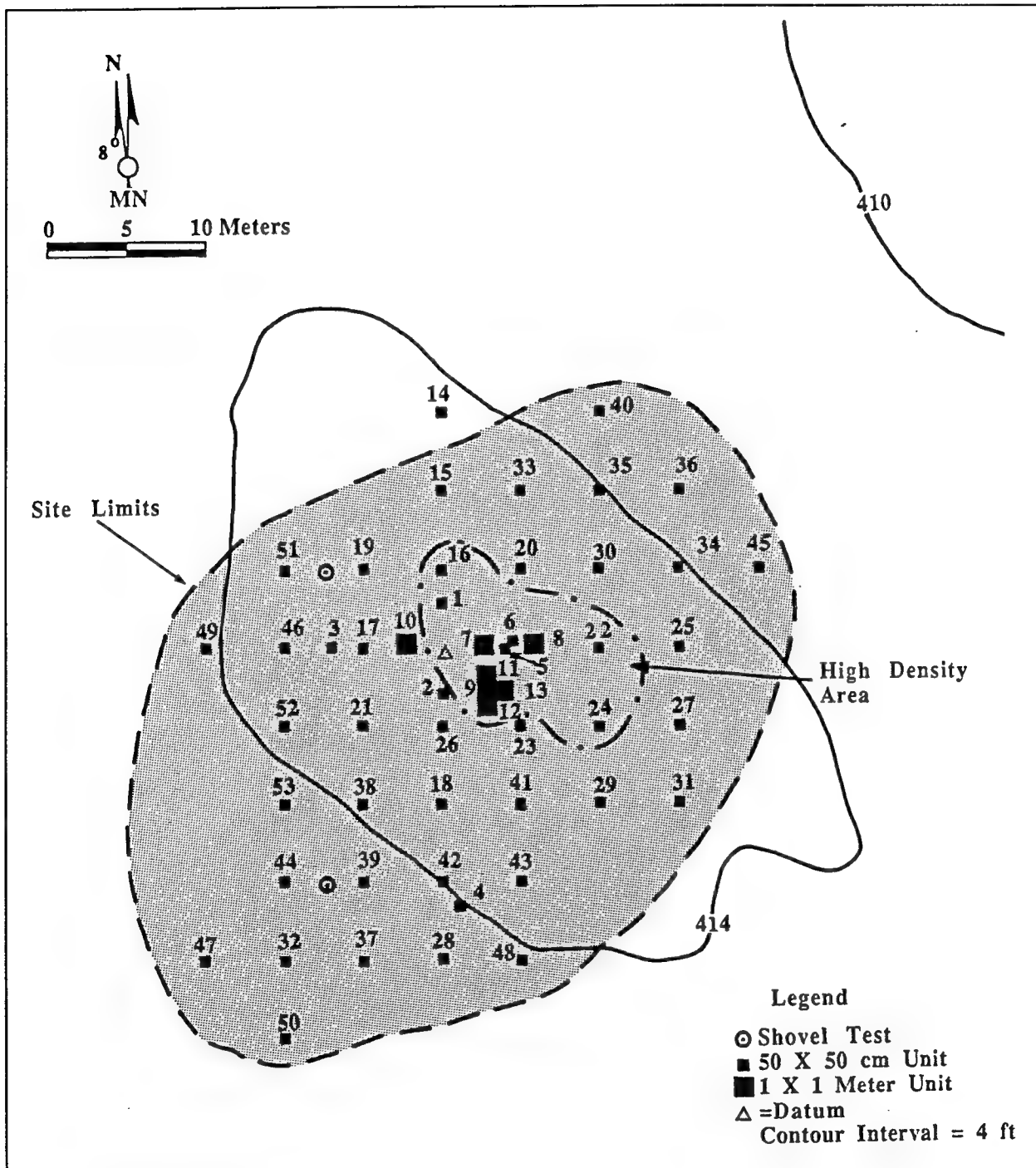


Figure 3-20. Major topographical features and location of excavation units at site 41DT127.

rather evenly throughout the sandy loam zone when total counts for each excavation unit and level were reviewed.

Most of the artifacts consisted of lithic debitage (1831 pieces) and fragments of fire-cracked rock (310 pieces). This, of course, was true for all tested sites, but the density of lithic debitage is exceptionally high within

the central area of 41DT127. The total of 51 cores and core fragments is also very high relative to their occurrence at other Cooper Lake sites. There are no extensive Ogallala quartzite/Uvalde deposits north of the South Sulphur. The dominance of lithic debitage suggests an emphasis on lithic tool production at this site. Only

TABLE 3-11

Summary Of Artifacts By Class From Site 41DT127

Unit	Level	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Ground & Battered Stone	Ceramics	Burned Rock
1	1	—	—	—	30	—	—	—	1
2	1	—	—	—	8	—	—	—	1
3	1	—	—	—	5	—	—	—	—
4	1	—	—	—	1	—	—	—	—
5	1	—	—	4	45	2	—	—	5
6	1	1	—	—	45	1	—	—	4
7	1	1	1	1	97	4	—	—	2
	2	1	—	—	104	1	—	—	23
	3	—	—	1	57	5	—	—	8
8	1	—	1	3	108	1	—	—	18
	2	2 ^a	1	1	107	2	—	1	17
	3	—	—	—	39	1	—	—	4
9	1	—	1	—	77	3	—	—	22
	2	—	—	—	57	6	—	—	9
	3	1	3	1	54	2	—	—	14
	4	2	1	3	53	6	—	—	15
10	1	—	—	2	45	—	—	—	6
	2	—	—	—	8	1	—	—	2
11	1	—	—	1	82	2	—	—	19
	2	—	1	2	52	3	—	—	6
12	1	—	—	—	45	1	—	—	7
	2	—	—	1	37	—	—	—	7
	3	—	1	1	51	1	—	—	10
	4	—	—	—	44	3	—	—	27
13	1	—	—	1	77	3	—	—	10
	2	1 ^b	—	3	92	1	—	—	14
	3	—	1	2	83	2	1	—	16
15	1	—	—	—	2	—	—	—	—
16	1	1	—	3	55	—	—	—	4
17	1	—	—	—	6	—	—	—	—
18	1	—	—	—	3	—	—	—	—
19	1	—	—	—	1	—	—	—	—
20	1	—	—	—	25	—	—	—	3
21	1	—	—	—	3	—	—	—	—
22	1	—	—	1	24	—	—	—	3
23	1	—	—	—	5	—	—	1	1
24	1	—	—	—	23	—	—	—	—
25	1	—	—	1	3	—	—	—	—
26	1	—	—	—	6	—	—	—	1
27	1	—	—	—	1	—	—	—	—
28	1	—	—	—	6	—	—	—	—
29	1	—	—	—	4	—	—	—	—
30	1	—	—	1	12	2	—	—	1
31	1	—	—	—	3	—	—	—	—
32	1	—	—	—	20	—	—	3	5
33	1	—	—	—	9	—	—	—	—
34	1	—	—	—	6	—	—	—	2

TABLE 3-11 (cont.)

Unit	Level	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Ground & Battered Stone	Ceramics	Burned Rock
35	1	—	—	—	9	—	—	—	—
36	1	—	—	—	2	—	—	—	—
37	1	—	—	1	1	—	—	—	—
38	1	—	—	1	1	—	—	—	—
39	1	—	—	—	1	—	—	—	—
40	1	—	—	—	1	—	—	—	—
41	1	—	—	—	4	—	—	—	—
42	1	—	—	—	2	—	—	—	—
43	1	—	—	—	6	—	—	—	—
44	1	—	—	—	2	—	—	—	—
45	1	—	—	—	6	—	—	—	—
47	1	—	—	—	2	—	—	—	—
48	1	—	—	—	4	—	—	—	—
49	1	—	—	—	4	—	—	—	—
50	1	—	—	—	8	—	—	—	1
51	1	—	—	—	2	—	—	—	—
53	1	—	—	—	2	—	—	—	—
N0c	—	—	—	—	16	—	—	—	—
N1c	—	—	—	—	6	—	—	—	—
E2c	—	—	1	—	11	—	—	—	—
S2c	—	—	—	—	1	—	—	—	—
W1c	—	—	—	—	1	—	—	—	—
Total		10	12	34	1812	53	1	5	310

^a One tip.^b Tip.^c Shovel probes.

one hammerstone was recognized in the site assemblage. Technological information about these cores and the other chipped stone artifacts is presented in Appendix A.

Among the bifacial tools are eight fairly complete dart points and two probable dart point blade fragments. No arrow points were recovered from this site. Examples of expanding, straight, and contracting stem forms are included among these dart points. Expanding stem forms include two Yarbrough specimens (Unit 7, Level 2 and Unit 9, Level 4) and two untyped specimens (Unit 9, Level 4 and Unit 16). The Yarbrough points have relatively long stems with straight bases, while the untyped specimens have convex bases that give the stems a more bulbous appearance. One straight stemmed example is very large (length 6.9 cm, width 3.7 cm, thickness 1.0 cm) and was recovered from Unit 6. It has squared shoulders and a parallel sided stem with a rounded base. Another specimen (Unit 9, Level 3) has

a slightly contracting, almost parallel sided, stem with well ground edges. The stem length (2.2 cm) is half that of the complete point, and the base is formed by nodular cortex. This specimen might be typed as Wells or perhaps Dawson. A contracting stem Gary (Unit 7, Level 1) and an untyped specimen missing its stem (Unit 8, Level 2) make up the remaining dart points.

The twelve other bifacial artifacts are all fragmentary. Ten of these are complete enough to suggest that they represent aborted bifaces that could have been broken during bifacial thinning. Almost all of the 34 unifacially worked tools were pieces of lithic debitage with rows of small flake scars along one or more of their edges. In addition to these marginally modified unifactes are a few unifacial tools with steeply retouched edges that are designated as scrapers.

The most unexpected discovery consisted of five undecorated ceramic sherds representing three different

vessels from three separate units (Table 3-11). However, these sherds are so small (< 2.0 cm in any dimension) that determinations of vessel forms were not possible. The plain coarse grog tempered sherd (Unit 8) was 8.0 mm thick and, the plain grog tempered sherd (Unit 23) measured 7.9 mm thick. All of the small grog tempered sherds (Unit 32) were plain, though surface treatment could not be determined due to surface erosion. These sherds are thinner (7.1 mm) and much better made than the other wares on the site, and may derive from a bowl form.

Tentative plans for further work at 41DT127 were abandoned when the recovery of these ceramic sherds demonstrated that multiple components were present. Along with the Gary dart point, these sherds provided evidence that significant, and temporally later occupations (possibly Early Ceramic) are represented in addition to the desired Middle Archaic component. Because it is now known that 41DT127 does not contain an unmixed Archaic period assemblage, no further work is recommended.

41DT128

This site was recorded during the 1987 survey as site T128, and was later assigned the state trinomial 41DT128. It is situated on the edge of a forested knoll extending east into an upland pasture adjacent to Cannon Creek and is bounded by the Cannon Creek on the west, and a stock tank on the east. The lithic scatter is so sparse toward both the north and the east that it was impossible to define precise limits. The site elevation ranges between 129.2-131.1 m (424-430 ft) amsl. Liberty Grove Cemetery is ca. 1.9 km (1.2 mi) southeast of the site, and the city of Cooper is ca. 2.7 km (1.7 mi) to the north. The soil is mapped as Annona loam (Ressel 1979). After testing, the entire site was found to measure at least 120 m north-south by 120 m (393.7 x 393.7 ft) east-west. Artifact concentrations are present on several low knolls in the forest west of the fence line.

Subsurface investigations during the survey include shovel tests spaced at 15-20 m (49.2-65.6 ft) intervals. Approximately 10 shovel tests were dug within the forested portion of the site south of the fence to determine site boundaries and about 15 shovel tests were dug in the area north of the fence and west of the stock tank, but none of these shovel tests yielded cultural materials. During the light testing program, twenty 50 x 50 cm (19.68 x 19.68 in) units were dug at 10-40 m (32.8-131.2 ft) intervals, primarily concentrating on the knolls in the forest (Figure 3-21). Unit 6 was sterile and abandoned before completion. All other units were hand excavated

down to clay and the matrix was dry screened through 6.4 mm (0.25 in) mesh. Depth to clay varied widely, ranging from 30-152 cm (11.8-59.8 in).

Site stratigraphy varies dramatically from unit to unit. In Unit 1, the A horizon consists of a dark brown sandy loam (0-3 cm) over a light brown sandy loam (3-42 cm), over a yellowish brown sandy loam (42-52 cm), over a light gray sandy clay with orange mottling (52+ cm). To the northeast, Unit 6 stratigraphy, outside of the site area, is characterized by a layer of dark grayish brown sandy loam (0-24 cm), on top of a yellowish brown sandy loam (24-60 cm). On a forested knoll west of the fence line, Unit 12 exhibits from top to bottom: a dark brown root mat (0-2 cm) on top of yellow sandy loam (2-35 cm), a yellowish brown sandy loam (35-68 cm), a very thin lens of white sand (68-70 cm), a yellow silty sand mottled with orange (70-100 cm), and at the bottom a gray clay (100+ cm). Unit 14 contains the deepest archaeological deposit; a post hole digger was used to dig down 152 cm below surface, and flakes were found all the way down to that depth. The deposit may have gone deeper, but it was difficult to dig any deeper in a 50 x 50 cm (19.68 x 19.68 in) unit. Unit 14 stratigraphy consisted of a dark gray sandy loam (0-8 cm), on top of a yellowish brown sandy loam (8-34 cm), over a reddish/yellowish brown sand (34-90 cm), on top of a light gray sand containing iron concretions which extended all the way to the bottom of the unit.

Artifacts were found in all units except Units 8, 16, 17, and 18 (Table 3-12). Although dart points, bifaces, unifaces, flakes, cores, and fire-cracked rock were recovered from this site, most units yielded only pieces of lithic debris. Three Gary dart points were recovered, including one with very light basal grinding along its stem and cortex along its base. Identifiable tools included: four bifaces aborted early in the reduction process, a possible dart tip, a biface fragment, a sidescraper, and three marginally modified unifaces with straight-to-convex working edges. The vertical distribution of artifacts in some units at 41DT128 suggested that a stratified deposit may exist. For instance, in Unit 4, most flakes were recovered in the upper 30 cm (11.8 in), then a hiatus occurred until 60-70 cm, where several additional flakes were found. This trend toward a hiatus was also recognized at various depths in Units 7, 10, and 13. In addition, a large flake of white stone which appeared to be novaculite was recovered in Unit 14 from the gray sand layer at 110 cm (43.28 in) below surface. This great depth below surface could indicate that the gray zone was a land surface during the Archaic period. Novaculite is considered to be a widespread trade item within the Trans-Mississippi South during the Archaic period (Early

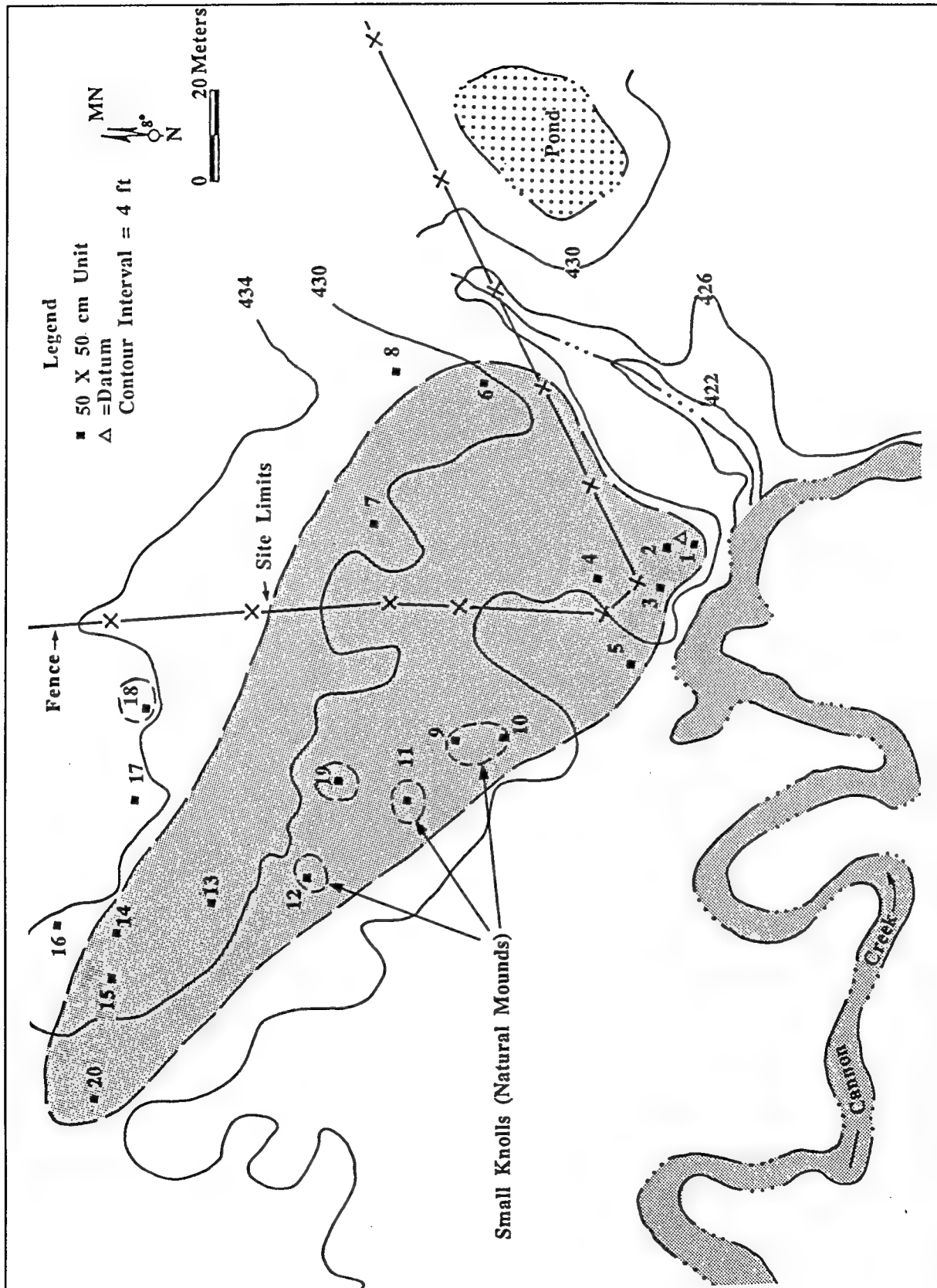


Figure 3-21. Major topographical features and location of excavation units at site 41DT128.

TABLE 3-12

Summary Of Artifacts By Class From Site 41DT128

Unit	Level	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Charcoal	Burned Rock
1	1	—	1	—	84	—	1	13
2	1	—	—	—	8	—	—	—
3	1	—	—	—	3	—	—	—
4	1	—	—	1	31	2	—	4
5	1	—	2	—	22	1	—	18
6	1	—	1	—	18	1	—	—
7	1	—	—	—	2	—	1	1
9	1	—	—	—	5	—	—	—
10	1	1	2	3	43	2	—	5
11	1	1	—	—	3	—	2	1
12	1	—	—	—	10	—	—	10
13	1	1	—	—	30	—	4	—
14	1	—	—	—	61	—	—	8
15	1	—	—	—	3	—	—	—
19	1	—	—	—	3	—	—	—
20	1	—	—	—	4	—	—	—
Total		3	6	4	330	6	8	60

1982:37). However, in several of the remaining units, a steady presence of artifacts was recovered all the way down to clay, so definitive evidence of stratigraphic separation is lacking.

The presence of dart points, lithic debris, and novaculite flakes at 41DT128, coupled with the lack of arrow points and ceramics, suggests that an Archaic period occupation was responsible for the entire deposit and that no subsequent Late Prehistoric period occupation took place. But, because of the relatively low density of artifacts recovered from this site, its potential to further an understanding of local prehistory was also viewed as limited. Also, bone and shell were not recovered, and thus the potential for contributing to an understanding of subsistence was similarly low. For these reasons, no additional work was conducted at this site.

41DT129

Site 41DT129 is located on an erosional bench within the South Sulphur River channel and is the farthest downstream of the sites discovered during the river channel survey. The top of the river bank at this location has an elevation of 121.3 m (398 ft) amsl. A scatter of artifacts was observed along the north side of the river over a distance of ca. 45 m (Figure 3-22). The site is on the outside bend of a meander loop and is being exposed by lateral erosion of the channel wall. Outside of the channel the surrounding floodplain was covered with dense woods. The site area within the channel was mostly free of vegetative cover.

Site stratigraphy was obscured in some areas by the slumping of the bank sediments. An upper zone of brown

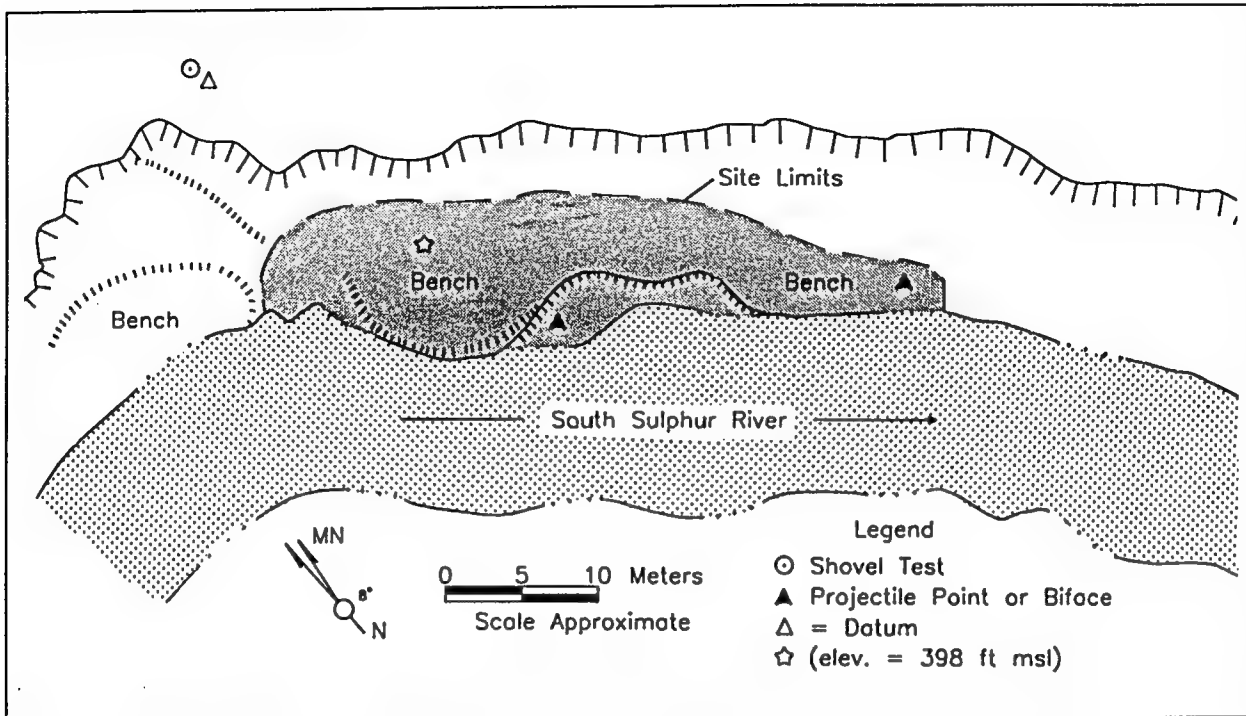


Figure 3-22. Major topographical features and location of isolated finds and shovel tests at site 41DT129.

clay less than 1 m (3.28 ft) thick was underlain by a dark gray clay. The thickness of this dark gray clay zone could not be determined, but it was underlain by a lighter colored clay that formed the erosional bench upon which the artifacts were found. While it is most likely that these artifacts originated from the Holocene alluvial clay sediments that form the river bank in this location, not one of them was in a primary context. All artifacts were situated between about 2.5-3 m (8.2-9.8 ft) below the top of the river bank, but it is uncertain how this depth relates to their original proveniences.

A shovel test unit (30 cm in diameter) was placed on the floodplain surface about 4 m (13.1 ft) back from the channel and was excavated 20 cm (7.9 in) into the upper brown clay zone. No artifacts were recovered from this unit. Surface artifacts at this site include lithic debitage, fire-cracked rock, cores, and two fragmentary dart points. Unfortunately, both dart points are missing most of their stems and cannot be assigned to a recognized type. The recovered portions are similar to certain contracting stem or straight stem types (i.e., Gary or Kent) that are diagnostic of the Late Archaic and/or Early Ceramic periods. Close inspection of the channel wall did not produce any *in situ* artifacts or eroding features that could indicate the original provenience of the artifacts.

The site is located downstream from the proposed dam and should not be subject to inundation. However, it

could be impacted by borrow pit or construction activities. Although artifacts were by no means abundant, the sample from 41DT129 is larger than those from most of the river channel sites. Unfortunately, the presence of *in situ* site deposits could not be demonstrated, and it is for that reason that no further work is recommended.

41DT130

Site 41DT130 is located within the South Sulphur River channel where a light scatter of artifacts was exposed along the north cut bank (Figure 3-23) over a distance of only about 10 m (32.8 ft). The top of the river bank is at an elevation of 122.5 m (402 ft) amsl. The stratigraphic profile along this section of the river is different from that observed during most of the river channel survey. There is an upper zone of dark gray clay about 1 m (3.28 ft) thick that lay disconformably atop a light brown clay with orange mottling. Sediments similar to this lower clay are exposed elsewhere within the South Sulphur River channel, and these sediments appeared to be identical to those underlying a series of low knolls in the floodplain nearby.

The surface artifacts include lithic debitage, fire-cracked rock, and a single biface fragment. These materials were lying on the surface of the light brown clay zone about 3 m (9.8 ft) below the top of the bank,

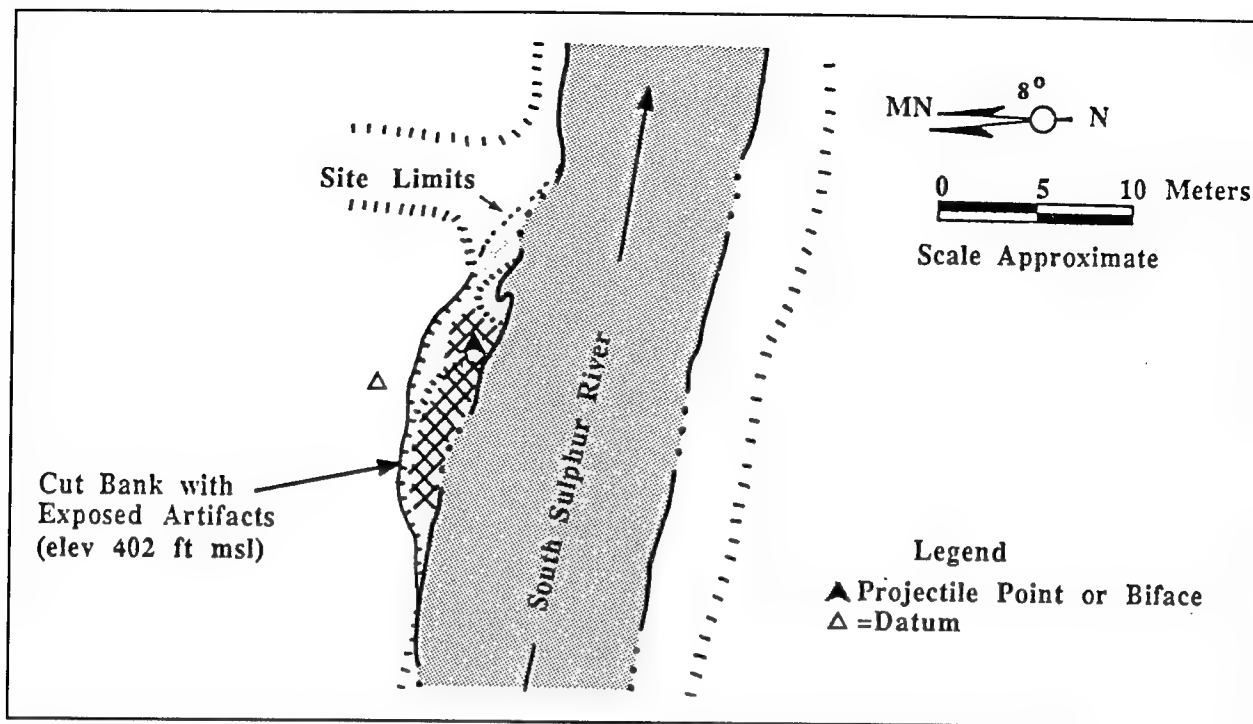


Figure 3-23. Major topographical features and location of artifacts in cut bank area at site 41DT130.

but did not appear to be in primary context. The upper dark gray clay at this location is probably relatively recent alluvium that overlay much older (pre-Holocene) sediments. In this case, it seems unlikely that the surface artifacts could be related to a former occupation surface at that depth. Inspection of the cut bank failed to provide any indication of *in situ* artifacts or eroding features that would verify the depth of the surface artifacts. Since nothing *in situ* was found, no further work is recommended for site 41DT130.

41DT131

Site 41DT131 is located adjacent to the channel of the South Sulphur River at its confluence with Doctors Creek. A limited number of artifacts were found along erosional benches on the north side of the river and east of Doctors Creek over a distance of about 30 m (98.4 ft) (Figure 3-24). Outside of the channel the floodplain surface has an elevation of 122 m (400 ft) amsl and is densely wooded. Vegetation within the channel consists of a discontinuous ground cover of grasses.

The surface assemblage consists of 14 pieces of lithic debitage and four pieces of fire-cracked rock. These all occur between 1.5-3.5 m (4.9-11.5 ft) vertically below the surface of the floodplain, but there is no evidence to indicate the original proveniences of these materials. It is

assumed that they were eroded from the Holocene alluvial sediments that form the river bank at this location. However, close inspection of the cut bank failed to locate any *in situ* artifacts or eroding features demonstrating the depth of former occupation surfaces.

In terms of potential impacts, the site may either be destroyed by borrow pit construction activities or inundated by the conservation pool of Cooper Lake. In either case, no further work is recommended for site 41DT131. This is due to the few artifacts observed and particularly to the lack of clear evidence to suggest that significant *in situ* deposits are present.

41DT132

Site 41DT132 is located along the south side of the channel of Doctors Creek at the point where a small intermittent stream enters from the southwest. Erosion has removed the upper sediments along the south bank of Doctors Creek and east of the small drainage, exposing a light scatter of artifacts within an area (Figure 3-25) measuring ca. 20 x 20 m (65.6 x 65.6 ft). Several large pecan trees are present within the site area, and a dense stand of hardwoods covers the adjacent floodplain. A dense ground cover of grasses is present except in areas where it has been eroded. The floodplain surface in this location has an elevation of 122 m (400 ft) amsl.

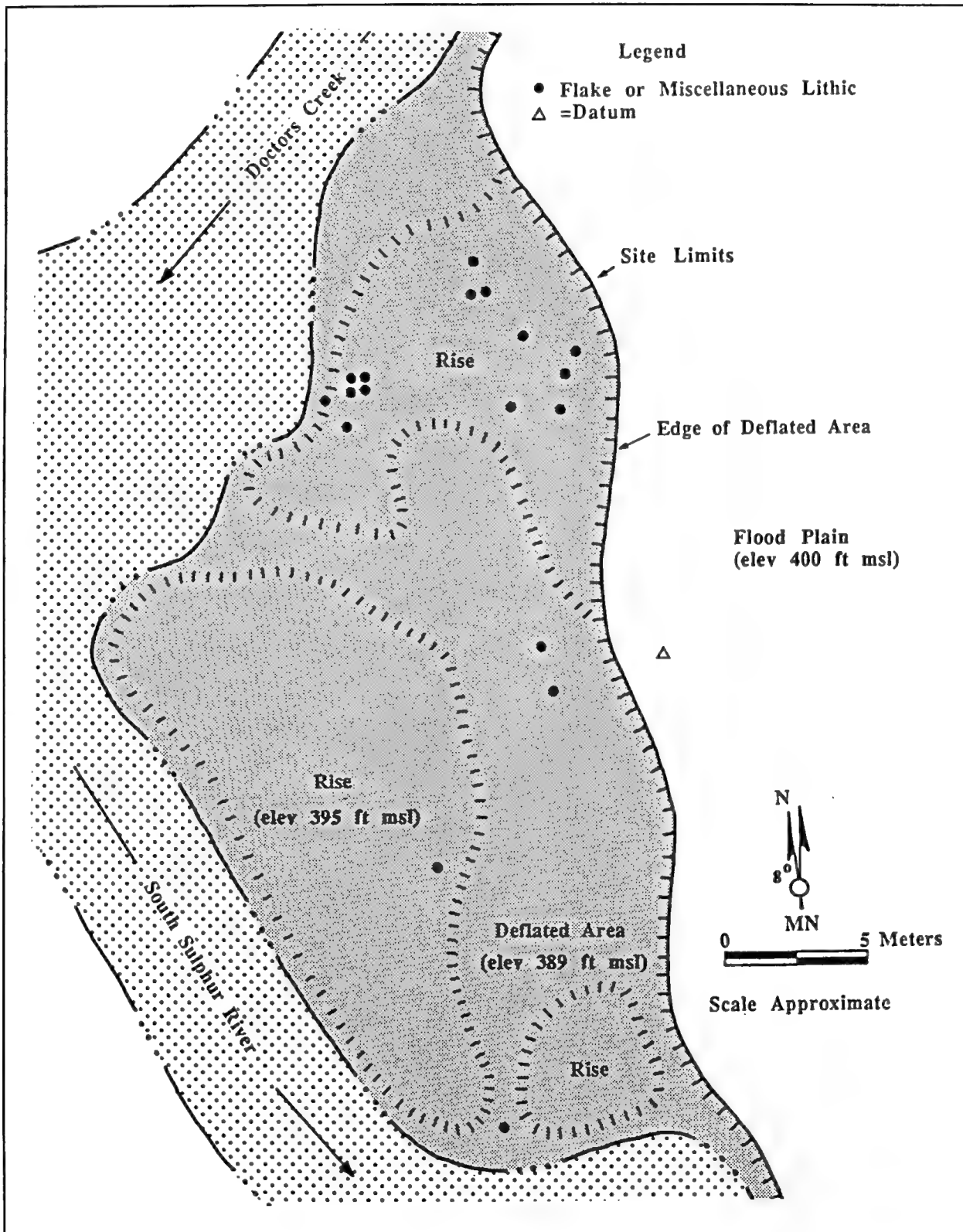


Figure 3-24. Major topographical features at site 41DT131.

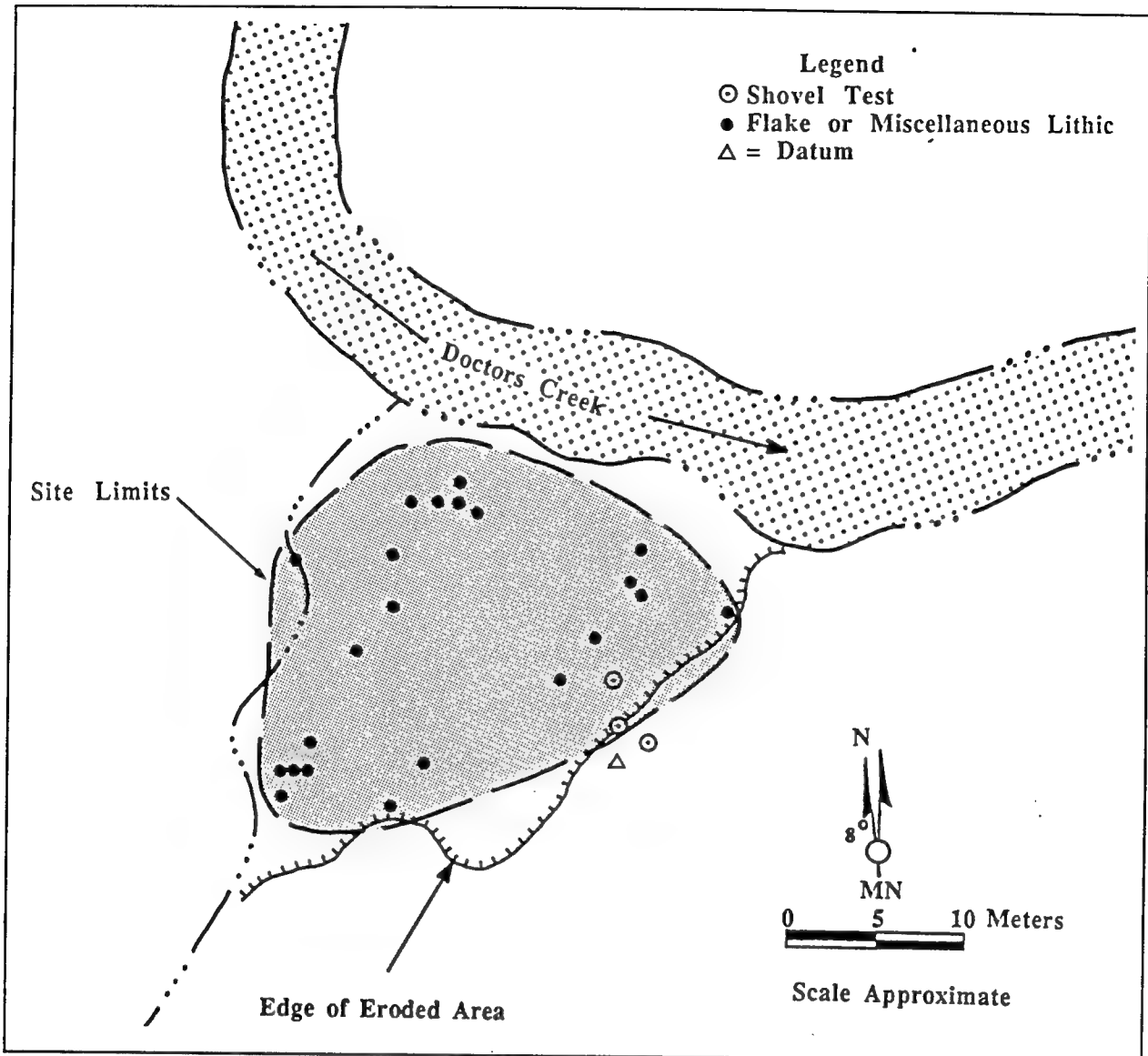


Figure 3-25. Major topographical features and location of artifacts and shovel tests in eroded areas at site 41DT132.

Three shovel test units (30 cm in diameter) were excavated in an attempt to document the source of the surface artifacts. In an uneroded part of the site the stratigraphy was shown to consist of an upper zone of very dark gray clay about 40 cm (15.7 in) thick that was underlain by a lighter colored gray clay. No artifacts were recovered from these shovel tests, but the positions of the surface specimens suggested that they were originally situated below the very dark gray clay zone, and probably within the upper part of the gray clay zone.

Site 41DT132 may be destroyed by borrow pit construction activities and will be inundated by the conservation pool of Cooper Lake. The inability to identify cultural materials in subsurface context and the

overall low density of artifacts are the primary reasons why no further work is recommended for this site.

41DT133

Site 41DT133 is located near the south end of a large terrace ridge overlooking the floodplain of Doctors Creek. The creek channel is about 40 m (131.2 ft) to the southeast. Site 41DT113 is located about 75 m (246.1 ft) upslope (north) on this same terrace landform. Elevations at 41DT133 vary between 125.0 m (410 ft) and 127.1 m (417 ft) amsl.

The site area is in pasture with a ground cover of grasses and a few small cedar trees along the crest of the

ridge. A dense stand of hardwoods is present downslope along the terrace edge and in the surrounding floodplain of Doctors Creek. The terrace soil is mapped as Annona loam. The western slope of the site is eroded in some areas, exposing the underlying clay B horizon at the surface. This site was discovered during the 1987 survey. At that time, six shovel test units (30 cm square) were excavated in an effort to define the spatial limits. The fill from these units was troweled through in search of artifacts. One or two pieces of lithic debitage were recovered from three of the units. Subsequent limited test excavations consisted of six 50 x 50 cm (19.68 x 19.68 in) units dispersed across the site (Figure 3-26). Each of these units was excavated by hand and the fill was screened with 6.4 mm (0.25 in) mesh. Two of the 50 x 50 cm (19.68 x 19.68 in) units (Units 1 and 2) failed to yield artifacts, while the highest counts of lithic debitage and fire-cracked rock were from Unit 3 (Table 3-13). Depth to the clay subsoil varied from 15-40 cm below the surface and was deepest along the southeast edge of the site (Unit 4).

The lack of temporally diagnostic artifacts from these test units makes it impossible to determine the time of occupation. Site 41DT113, located about 75 m (246.1 ft) upslope, yielded projectile points diagnostic of both Archaic and Late Prehistoric period occupations. While it is likely that these two sites are related in some way, too few data are available to establish the timing and nature of the occupation at 41DT133.

Site 41DT133 may be destroyed by borrow pit activities and will be inundated by the conservation pool of Cooper Lake. No further work is recommended at this site for several reasons. No faunal remains were recovered from the limited test excavations. The site yielded few diagnostic items and no definable features. Finally, a substantial amount of erosion has impacted the western part of the site.

41DT134

Site 41DT134 is situated at the south end of a prominent terrace ridge overlooking the channel of Doctors Creek. This terrace ridge is the same landform on which 41DT83 is located, ca. 100 m (32.8 ft) upslope. Elevation of the site area is 124.4-125.0 m (408-410 ft) amsl. A meander loop of Doctors Creek abuts the southern edge of the site, and the creek's forested floodplain begins immediately south of the site. The site area is mapped as Annona loam soil while the adjacent floodplain is Kaufman clay. Vegetation across the site consists of an understory of grasses, green briar, and poison ivy, and an overstory of large hardwood trees. A

large cleared area is located less than 20 m (65.6 ft) north of the site. Extensive evidence of rodent and/or armadillo burrowing is confined primarily to the southern edge of the site.

This site was discovered during the systematic shovel testing of high potential site areas, as part of the 1987 survey. At that time, nine shovel test units (30 cm [11.8 in] in diameter) and a single 50 x 50 cm (19.68 x 19.68 in) unit were excavated within the general site area in an effort to establish its spatial limits. Subsequently, four additional 50 x 50 cm (19.68 x 19.68 in) units were excavated (Figure 3-27). The fill from all units was excavated by hand and then dry screened through 6.4 mm (0.25 in) mesh. The artifact bearing, sandy loam A horizon varied between 30 cm (11.8 in) and 40 cm (15.7 in) in thickness within these units. Overall, the density of artifacts was quite low (Table 3-14). Only Unit 1 yielded an appreciable concentration of cultural materials, as well as most of the temporally diagnostic artifacts recovered from the site. These consisted of two ceramic sherds, a Gary dart point, and a Scallorn arrow point. Single ceramic sherds were also recovered from each of two shovel test units located less than 5 m (16.4 ft) from Unit 1. Artifact density was much lower for all other excavation units. None of the test units was found to contain any faunal remains, and it appeared that the site deposit provided a poor preservation environment for organic materials useful for gathering subsistence information.

Four sherds were collected from excavations at the site. The sherd from shovel test S1 is a plain, body, grog tempered ware. Its surface is eroded and an accurate thickness measurement could not be obtained. From shovel test W2, a shell tempered plain sherd with a distinct corner point (e.g., Brown 1971:26) representing a stilt-defined base to a jar was recovered. The flat base is 11.0 mm thick and above the corner point the body narrows to 9.3 mm. Plain, unburnished shell tempered pottery may be classified as Woodward Plain (Brown 1971:141), although only the lower portion of a shell tempered vessel is represented. The two body sherds from Unit 1 include a plain bone tempered ware, and a 9.0 mm thick plain coarse grog tempered ware. Neither have any kind of surface treatment, and both are too small to categorize by vessel form.

The limited number of diagnostic artifacts provide somewhat equivocal evidence concerning the time period of occupation. The Gary dart point may be a rather poor chronological marker and the four undecorated sherds offer little specific information. The shell tempered ceramics, however, appear to be most common in occupations post-dating A.D. 1400 (see Chapter 6 and

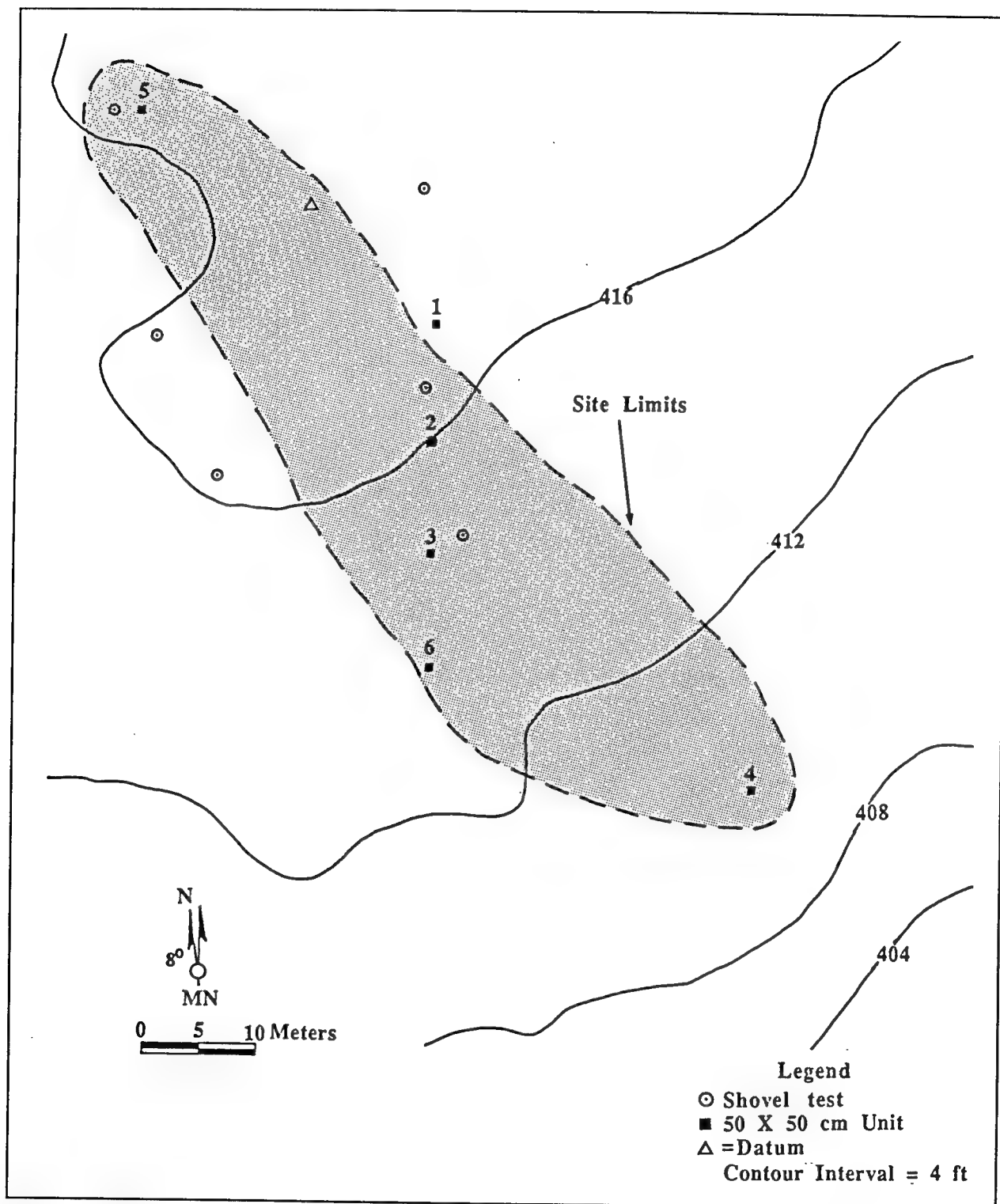


Figure 3-26. Major topographical features and location of excavation units at site 41DT133.

Pertulla 1988). It is possible that more than one temporal component is represented, but equally likely that all materials could date to a single component occupation

during either the Early Ceramic period or the Late Prehistoric period.

TABLE 3-13

Summary Of Artifacts By Class From Site 41DT133

Unit	Level	Biface	Lithic Debitage	Core	Burned Rock
3	1	1	22	1	3
4	1	—	11	—	1
5	1	—	6	—	2
6	1	—	4	—	1
Total		2	43	1	7

The site may be impacted by borrow pit construction activities and will be inundated by the conservation pool of Cooper Lake. However, because of the overall low density of artifacts and poor preservation of organics, no further work is recommended for site 41DT134.

HOPKINS COUNTY SITES

41HP104
(formerly X41HP36)

This small prehistoric site was found and recorded by the 1970 SMU survey (Hyatt and Skinner 1971) and then was relocated and reevaluated by the present survey. The site is situated on a moderate slope between 128.3-132 m (421-433 ft) amsl, ca. 80 m (262.5 ft) south of an east-west bend in a primary tributary of Moore Creek, and ca. 500 m (1640.4 ft) northwest of the road fork at Harper's Hill (Figure 3-28). The slope is covered with a moderately dense medium-to-tall grass with extensive areas of greenbrier thicket and scattered hardwood trees, such as oak and bois d'arc.

The nearest water source is a tributary of Moore Creek flowing 80 m (262.5 ft) to the north and about 100 m (328 ft) to the west of the site. The site area and the entire hill is covered with Bazette clay loam consisting of moderately deep sloping upland loamy soils (Lane 1977). Portions of the site show a high degree of erosion which has removed the clay loam upper soil horizons and exposed the underlying olive-brown clay. The site will be completely inundated by the conservation pool of Cooper Lake.

During the initial site recording in 1970, a small surface collection totaling 66 artifacts was made. This collection included 46 pieces of lithic debitage, four cores, one biface, three retouched pieces, and 12 fragments of fire-cracked rock. The bulk of the lithic debitage consists of secondary and interior flakes and chips with unfaceted platforms predominating. The vast majority of the lithic material consists of local quartzite, with only one chip of petrified wood.

When 41HP104 was again recorded in 1987, a total of nine flakes and one fragment of fire-cracked rock were noted over ca. 1288 m² (ca. 46 m northwest-southeast x 28 m northeast-southwest). A series of eleven 30 x 30 cm (11.8 x 11.8 in) shovel tests were excavated around the site, with the fill being screened through 6.4 mm (0.25 in) wire mesh, in order to identify and define any subsurface deposits. Six of these shovel tests contained artifactual material totaling twelve flakes and one fire-cracked rock. However, the deposit proved to be ca. 10 cm (3.9 in) deep and even this was removed by erosion in a number of places.

Based on the low density of the prehistoric artifactual remains, the eroded condition of large parts of the site, the shallow nature of the preserved deposits, and the lack of diagnostic material and fauna, no further work at 41HP104 is deemed advisable subsequent to its relocation and rerecording.

41HP105:
The Cox Site
(formerly X41HP37)

This large multicomponent site was originally recorded by SMU during the 1970 survey (Hyatt and Skinner 1971). The site is located on one of a series of rises within the floodplain on the south side of the South Sulphur River, ca. 440 m (1443.6 ft) east-northeast of the confluence of Moore Creek and the South Sulphur River, and ca. 870 m (2854.3 ft) east-northeast of the old Harper's Crossing on the South Sulphur River. At its closest, the South Sulphur River comes within ca. 320 m (1049.8 ft) of the site. To its northwest is a section of the river near site 41HP150.

The site is mapped as being on Gladewater clay (Lane 1977), a clayey alluvial soil found in bottomlands. Generally, the soil profile consists of an A horizon of about 12.5 cm (4.9 in) of black clay over about 10 cm (3.9 in) of very dark gray clay with yellowish-brown and dark brown mottles. Below this, to a depth of about 165 cm (65 in) were dark gray clay B and C horizons with yellowish brown and olive brown mottles (Lane 1977:12-

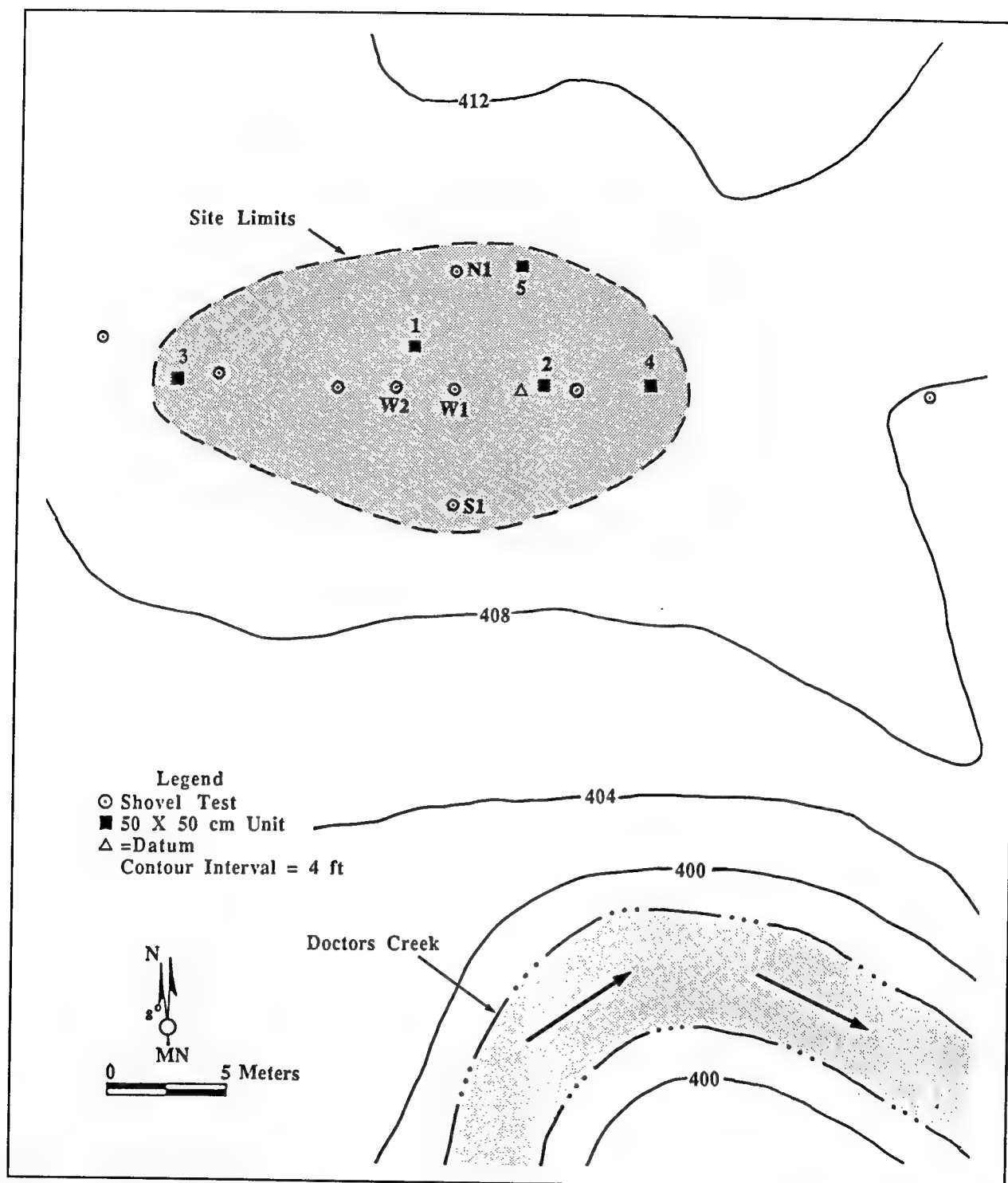


Figure 3-27. Major topographical features and location of excavation units at site 41DT134.

13). The portion of the site investigated by SMU in the 1970s was recently fallow and covered with tall grass and sumac trees. The remainder of the site area was forested with bois d'arc, oak, elm, and hackberry trees.

When revisited in 1987, the ground cover was not appreciably changed. The portions of the site disturbed by the previous archaeological work were recognizable as having a more "weedy" cover, and the forested portions

TABLE 3-14

Summary Of Artifacts By Class From Site 41DT134

Unit	Level	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Ceramics	Burned Rock
1	1	2	2	2	29	1	2	14
2	1	—	1	—	2	—	—	—
3	1	—	—	—	5	—	—	—
4	1	—	—	1	4	—	—	—
5	1	—	—	—	4	—	—	—
N1*	—	—	—	—	—	—	—	1
S1*	—	—	—	—	2	—	1	—
W1*	—	—	—	1	5	—	—	—
W2*	—	—	—	—	4	—	1	1
Total		2	3	4	55	1	4	16

* Shovel probes.

of the site are still covered by oak and other hardwoods. It is clear, however, from the differential size of the trees and the density of the understory, that an area of the site larger than just that previously worked by SMU had once been in cultivation. It seems likely that all of the site area, except possibly for a small portion next to the slough on the western edge of the site, was cultivated at some time. The bulk of the site is just above 123.1 m (404 ft) amsl in elevation and will be completely inundated by the conservation pool of Cooper Lake (Figure 3-29).

At the time of its initial recording in 1970, a collection was made from the surface of the site and this was later used for site comparison and model development within the reservoir as a whole (Hyatt and Skinner 1971). A sample of 151 artifacts was collected at that time; including 79 pieces of lithic debitage, five cores, 21 bifaces, three dart points (untyped), 15 retouched pieces, 13 fragments of fire-cracked rock, two manos, and 13 sherds. Of the lithic debitage, about 63% are secondary flakes and chips with most of the remainder consisting of interior pieces (ca. 30%). The bulk of platforms are cortex or uniface, while the majority of raw material is local in origin (either quartzite or petrified wood). Based on the artifacts collected by the survey, it was hypothesized that tool manufacturing, hunting, gathering, and cooking activities had all taken place on

the site, and that the site occupation included both the "Archaic" and "Caddo" periods (Hyatt and Skinner 1971:25).

During the summer of 1972, SMU returned to the Cox site for further testing (Hyatt et al. 1974). This work concentrated on the most easily identifiable portion of the site: an area of about 2000 m² (6561.7 ft²) located in a clearing in the eastern half of the site (see Figure 3-29). The 1972 work began with the mapping of the top of the rise in this area, followed by the controlled surface collection of a 1056 m² area on top of this rise (collection was done using two hundred sixty-four 2 x 2 m squares). This collected material included 24,802 fragments of fire-cracked rock; 15,276 pieces of lithic debitage; 1,247 fragments of clay daub; 4,292 fragments of animal bone; 202 sherds; 302 cores; 726 bifaces; 550 chipped stone tools, including 45 arrow points, 79 dart points, and 426 uniface; and 2,262 historic artifacts, including brick, glass, and metal fragments (Hyatt et al. 1974:28-38). Using this data, a series of artifact distribution maps were generated for the Cox site (Hyatt et al. 1974:Figures 9-17). On these maps, several of the artifact types show strong covariation (i.e., fire-cracked rock, lithic debitage, and bifaces), others appear to show a weak pattern of association (i.e., clay daub, fauna, and ceramics), and a third group appears to show a random pattern of

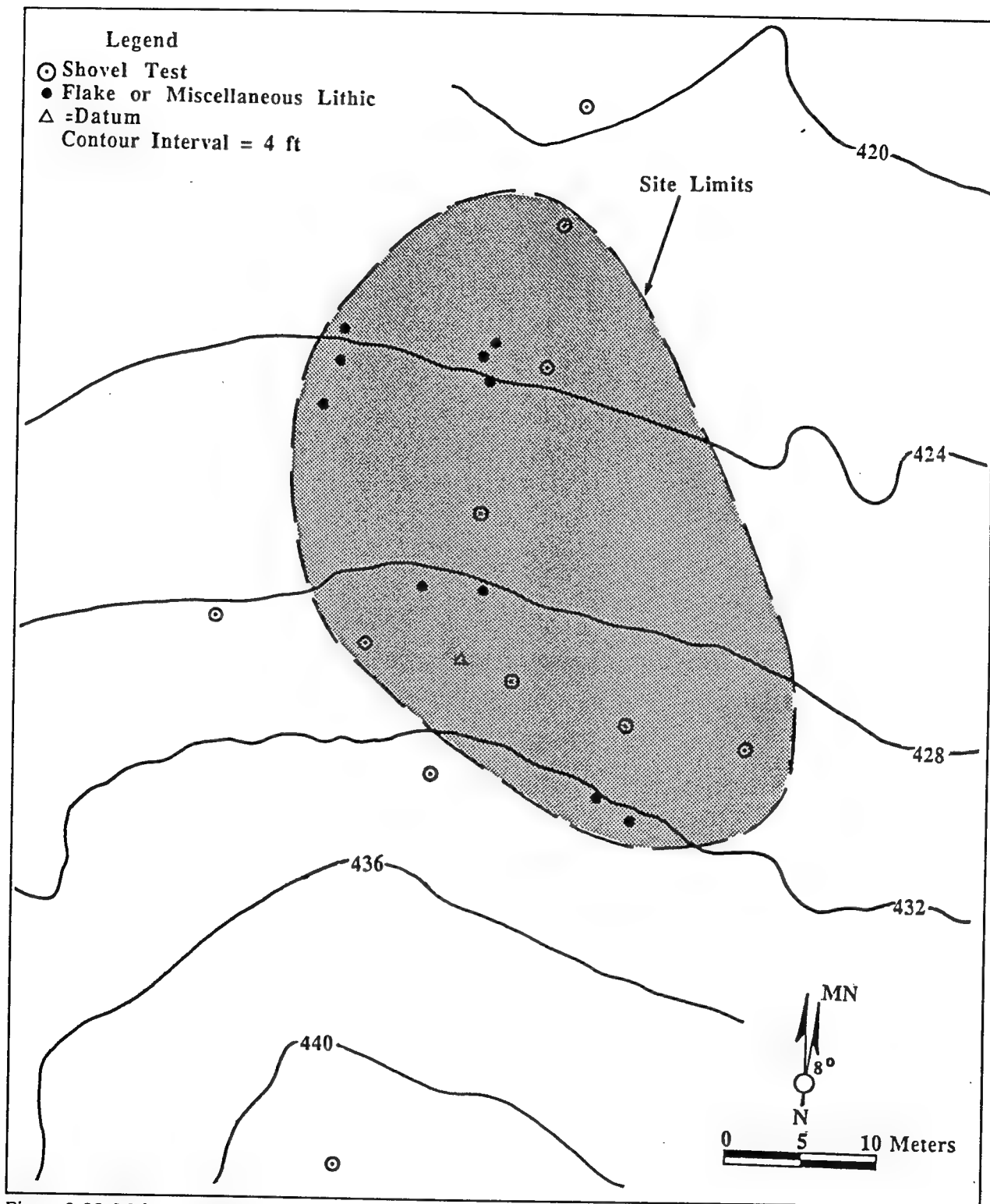


Figure 3-28. Major topographical features and location of excavation units at site 41HP104.

distribution (i.e., cores and lithic tools). Based on these patterns, the excavators suggested that the distribution of

daub, fauna, and ceramics represents activity or living areas on the west central portion of the rise; while lithic

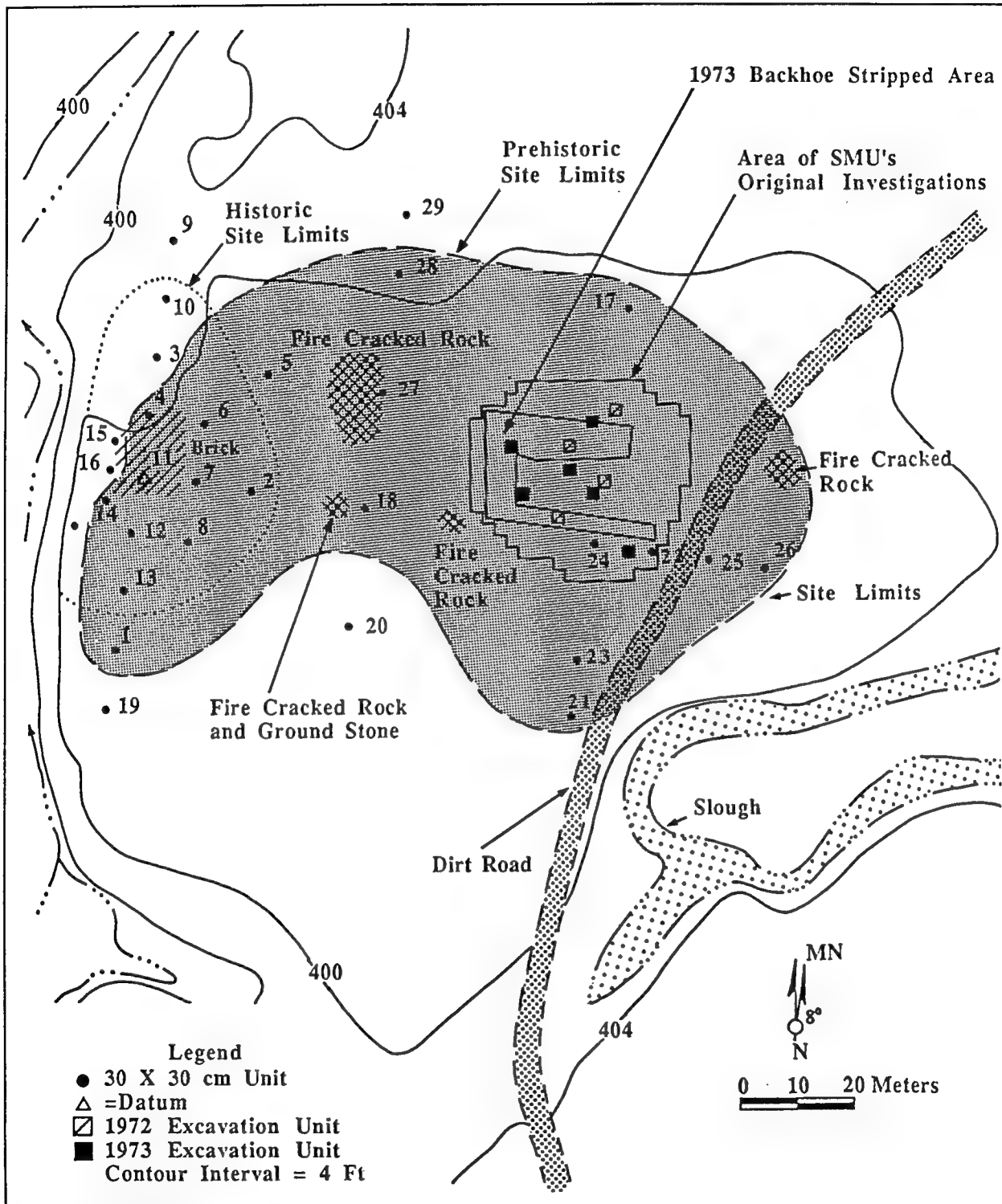


Figure 3-29. Major topographical features and location of excavation units at site 41HP105.

debitage and fire-cracked rock represents removal and dumping activities on the periphery of the rise. They went on to suggest that these distributions were the result of

"several small occupation units" in the western area of the rise (Hyatt et al. 1974:32). The lack of any archival or informant reports about the historic occupation on the site

led the excavators to conclude that the historic artifacts were the result of recent dumping activities only (Hyatt et al. 1974:32).

Subsequent to the surface collection, a series of four 2 x 2 m squares was placed across the top of the rise from south to north, Units 92, 163, 115, and 186, respectively (see Figure 3-29). These units were placed prior to the completion of the analysis of the surface data and without any reference to any areas of artifact density revealed by the surface distribution maps. As a result, all of the squares fell outside any of the artifact concentrations identified on the maps and within the greatest concentration of historic materials (Hyatt et al. 1974:38). The units were shovel scraped in 10 cm (3.9 in) arbitrary levels, and were excavated down to sterile clay (presumably this refers to the top of the B horizon). The depth of this clay reportedly varies from 40-50 cm (15.7-19.68 in) below surface in the southern three units, but is only 18 cm (7.1 in) below the surface in the northernmost unit. Examination of the original field notes indicates that the top of the B horizon occurs at generally the same absolute level in three of the four units (92, 163, and 186) and is only 15-20 cm (5.9-7.9 in) higher in the fourth (115), suggesting that much of the rise may be of cultural origin - possibly a midden. The excavators noted that in all four squares, the most material is contained within the top 10 cm (Hyatt et al. 1974:44), but their failure to screen the material below Level 2 makes this observation impossible to quantify (Hyatt, unpublished 1972 field notes:16). The excavators suggest a possible "stable living surface" on the west-central area of the rise (Units 92 and 115) at about 20 cm (7.9 in) below the surface, revealed by a cluster of fire-cracked rock in one unit (92) and a concentration of charcoal, shell, hematite, and fire-cracked rock in the other unit (115) (Hyatt et al. 1974:44). These are the only two features reported by SMU, but the field notes refer to two patches of "dark soil" visible in the sterile clay in Level 5 of Unit 163. These are in the northeast and southwest corners of the square. Only the stain in the northeast corner was excavated, apparently going no deeper than 70 cm (27.6 in). At the time, this was judged to be only a "natural low spot in the original ground surface" (Hyatt, unpublished 1972 field notes:18), but it may be the base of a pit dug down from above.

The subsurface investigations at the Cox site in 1972 resulted in the recovery of 9,495 lithic artifacts, 1,426 fragments of bone, and 42 sherds (Hyatt et al. 1974:Table 9). Mussel shell is mentioned as being recovered from both the surface collection and the excavations, but neither counts nor weights are reported. Counts for lithic artifacts are given in Table 9 as being 5,585 pieces of lithic debris, 169 cores-bifaces, 26 dart points, 15

arrow points, 152 retouched pieces, 3,545 fragments of fire-cracked rock, and three pieces of ground stone.

In regard to temporally sensitive artifacts, the 1972 investigations at the Cox site recovered a total of 165 complete or fragmentary projectile points, the majority of which are Gary dart points (Table 3-15). Of the 237 sherds recovered from the 1972 investigations, 211 are plain and only 26 are decorated. The vast majority are tempered with crushed sherd (193) or sherd in combination with bone (18) or sand (17). The remaining nine sherds are sand tempered. Of the decorated sherds, 21 are classified as miscellaneous engraved or incised, two as "miscellaneous free punctate," and only three are identified as to type: one sherd of Pennington Punctated-Incised, one of Holly Fine Engraved, and one of Coles Creek Incised. Analysis of the faunal collection from both the surface and excavated portions of the Cox site resulted in the identification of a minimum of 14 deer, which is the largest minimum number of individuals identified for any species. The other most common animals identified include raccoon, cottontail rabbit, and box turtle. Other animals present include sheep (presumably historic), dog, striped skunk, beaver, woodrat, bird, and soft shell turtle. No indicators of seasonality were identified, but the evidence did indicate that complete deer were butchered on the site.

Based on the 1972 data from the site, it was concluded that a preceramic Archaic occupation is present at the site, underlying a later Caddoan component which is confined to the upper 20 cm (7.9 in) of the site deposits. Thus, the lower 30 cm (11.8 in) belongs to the Archaic occupation. It was further suggested that the site shows increased utilization through time but with little or no qualitative change in artifact inventory (with the exception of the addition of ceramics and arrow points), subsistence practices, or site utilization. A finer bracketing of the Archaic occupation at the Cox site was not suggested, but the Caddoan occupation is associated with the Alto focus of the Gibson aspect (Hyatt et al. 1974:57), equivalent to Caddo I, or the early part of the Early Caddoan period.

Additional archaeological investigations were undertaken at site 41HP105 during 1973, involving the excavation of six more 2 x 2 m squares and the backhoe stripping of a large area (estimated as ca. 212 m² based on the published plan map) on the north, west, and south sides of the rise (see Figure 3-29). The stated goals of this season's work were to (1) obtain a more complete faunal sample for a better understanding of subsistence and seasonality; (2) determine the nature of the high artifact density areas identified on the surface distribution maps from the previous season and clarify the relationship

TABLE 3-15

Summary Of Projectile Points From Site 41HP105, 1972 And 1973 Investigations

Type	1972 Surface	1972 Excavation	1973 Excavation	Total
<i>Dart Points</i>				
Middle Archaic				
Yarbrough	5	1	—	6
Wells?	1	—	2	3
Trinity	—	2	—	2
Late Archaic				
Elam	1	1	—	2
Palmillas	—	—	1	1
Terminal Archaic				
Edgewood	1	—	1	2
Darl	—	1	—	1
Ellis	2	—	—	2
Early Ceramic				
Gary	64	16	29	109
Unidentified	5	5	22	32
Subtotal	79	26	55	160
<i>Arrow Points</i>				
Early Ceramic				
Scallorn	9	2	4	15
Early Caddoan				
Alba	—	7	—	7
Alba-Bonham	25	—	—	25
Bonham	—	—	1	1
Unidentified	11	6	9	26
Subtotal	45	15	14	74
Total	124	41	69	234

between the surface and subsurface data; and (3) expose and excavate cultural features such as burials, pits, and hearths (Hyatt and Doehner 1975:23). These six units were scattered across the surface of the rise, one placed within a concentration of fire-cracked rock on the north slope (Unit 151), two more on the margin of two separate

fire-cracked rock concentrations on the west slope (Unit 38 to the north and Unit 48 to the south), the fourth and fifth immediately south of the top of the rise (Unit 113 to the north and Unit 145 to the south), and the final square in the extreme southeastern area of the rise on the margin of yet another concentration of fire-cracked rock (Unit

191). Mechanical scraping was conducted with the front loader of a backhoe and involved the removal of two swaths across the northern edge of the rise, two shorter swaths across the western edge from north to south, and a single transect east-to-west across the southern slope of the rise.

These investigations resulted in the identification of a number of features which were described in the 1975 report (Hyatt and Doehner 1975:23-26). Three burials were uncovered; two flexed. Burial 1 was found in Unit 48, on the southwestern slope of the rise, at about 35 cm below the surface. Based on the photographs, the body is flexed, facing north, with the head to the west. No burial furnishings were recorded for Burial 1. Two additional burials were uncovered by the backhoe on the northwestern slope of the rise. Burial 2, in the northwest portion of the scraped area, is too fragmentary to allow determination of burial disposition. Burial 3 is just southeast of Unit 38 and in better condition. The photograph shows it to be loosely flexed, facing generally south, with the head to the west. No grave goods were reported from either Burial 2 or Burial 3. Based on laboratory analysis, Burial 1 is judged to be a male, aged 30 ± 5 years, while Burial 3 was judged a female, aged 35 ± 5 years. Burial 2 is too fragmentary to allow age and sex determination. Both Burials 1 and 3 show a number of dental abscesses and caries, while Burial 1 also shows evidence of osteomyelitis (Westbury 1975:67-68).

Besides the burials, seven other features were recorded during the 1973 excavations at 41HP105. Features 1, 2, and presumably 3 all appear to be concentrations of animal bones identified within the backhoe scraped area (Hyatt and Doehner 1975:Figure 20). These features were not discussed in the 1974 report and it is impossible to tell from the field notes which feature number refers to which concentration. Presumably they represent concentrations of articulated bone within a general midden deposit. Feature 4 referred to a dense concentration of mussel shell in a pit in Unit 113 near the top of the rise. The pit containing Feature 4 measured 65 cm (25.6 in) below the surface. The shell valves were unburned and unarticulated and a bone fish hook was found at the base of the pit. Apparently, Feature 4 represents a trash deposit inside of a pit, but it is impossible to identify the original function of the pit.

Feature 5 reportedly consisted of a 130 cm (51.2 in) diameter area of dark fill surrounded by a "hard-packed clay ridge ranging from 15-24 cm wide" (Hyatt and Doehner 1975:26). No function was proposed for Feature 5 in 1974, but a careful review of the available field notes and photographs dealing with its excavation suggests the possibility that it was a basin-shaped hearth surrounded

by a built-up ridge. The 1974 description went on to state that the "ridge extended from 30-45 cm below the surface, but was difficult to follow in some areas" (Hyatt and Doehner 1975:26). The ostensible limits of this feature were shown in Figure 20, but a careful perusal of the available field notes failed to reveal the original field drawing of this published rendition. Instead, both the field drawings and photographs show a more circular feature, extending throughout most of Unit 145, measuring at least 175 cm in exterior dimensions with the interior measuring 120-150 cm at 30 cm (11.8 in) below the surface. The ridge seems to become wider with depth and by 50 cm (19.68 in) had disappeared in a "lighter-seemingly more sandy" matrix (Logsdon, unpublished field notes: July 17, 1973). Since the Feature 5 "ridge" was described as being composed of a "light, hard-packed sandy-clay," the implication is that the "ridge" disappeared into a similar matrix by 50 cm (19.68 in) below the surface. This would mean that if Feature 5 was basin-shaped with an interior floor of light sandy clay, it may have gone unnoticed by the excavators at the A horizon/B horizon contact.

If Feature 5 was a hearth, it apparently was not completely fired. The single color photograph of the feature seems to show an area composed of clay with a similar texture to that of the surrounding fill, but of a very pale brown color (possibly 10YR8/3). The photograph gives no indication of any hardening of this "ridge" such as one would expect from heavy firing. Nevertheless, the overall size and shape of the feature, and a color suggesting some degree of oxidation, support its function as a hearth. Unfortunately, it is impossible to tell whether or not the "ridge" showed any evidence of firing at a lower level or in the center; but one of the black and white photographs taken at the base of the 30-40 cm level suggests that the clay was more friable at that point possibly due to firing. What is certain is that the excavation notes make no mention of any concentration of ash or charcoal associated with the area within the Feature 5 "ridge," at any level. If Feature 5 was a hearth, it must have been kept extremely clean.

Features 6 and 7 both were reported as hearths in 1974 (Hyatt and Doehner 1975). In Figure 20 of the report, Feature 6 was shown as "Hearth No. 2," while Feature 7 was designated "Hearth No. 1." Feature 6 was reported to be "a hard-packed, oxidized area ca. 1 m (3.28 ft) in diameter extending from 20-22 cm below the surface- charcoal fragments, bone fragments, and a small amount of fire-cracked rock were found within-" (Hyatt and Doehner 1975:260). Unfortunately, Feature 6 was exposed by backhoe scraping and the field notes for its excavation are extremely confusing. The notes indicate

that Feature 6 was exposed at a depth of 20 cm (7.9 in) and then troweled down an additional 2-5 cm prior to being sectioned. The sectioning apparently revealed the shallow nature of the "yellow to orange clay-at most 2 cm below the 22 cm level" (Humphreys, unpublished field notes: July 19, 1973). Apparently, this sectioning went to at least 40 cm, continuing to pick up lithic debris and burned rock. The 20-25 cm level reportedly contained shell, bone, charcoal, ochre, fired clay, fire-cracked rock, dart and arrow points, cores, and lithic debris. No mention was made of any large concentrations of ash or charcoal. Unfortunately, Feature 6 was not profiled nor adequately photographed and the true nature of this feature remains equivocal. Apparently, it was recognized while still in midden deposits by its "yellow to orange clay" matrix suggesting oxidation and supporting the hearth ascription. It is possible that the majority of the feature was scraped away, leaving behind only a portion of the oxidized fill surrounding the actual hearth.

The final cultural feature reported on from the Cox site was Feature 7 (Hearth No. 1) described as:

A probable hearth - at 20 cm below the surface - approximately 108 cm in diameter, extending to 53 cm below the ground surface. No charcoal or ash was found in direct association, but the fill was slightly oxidized. Charcoal recovered from above this feature, 12 to 19 cm below ground surface, is dated at A.D. 840 \pm 120 (Hyatt and Doehner 1975:26)

As is the case for Feature 6, the field notes relating to Feature 7 are not very satisfactory. In the excavation notes it was described as "a reddish, basin shaped concentration of soil and cultural debris" (Logsdon, unpublished field notes: July 20, 1973). No other reference to the matrix of Feature 7 was noted, although mention was made of "some shell and bone [and] clay daub." Feature 7 was drawn in plan view and was profiled. However, it apparently extended 27 cm below the level at which it was first noted, and could have gone a maximum of 53 cm if it was dug down all the way from the surface. Even at a minimum of 27 cm, Feature 7 appears to be rather thick for a typical hearth. While it is possible that Feature 7 is a roasting pit, neither the notes nor the profile make any mention of a layer of oxidized discoloration surrounding the margins of the feature, and the single published photograph is unclear, seeming to show a dark interior fill to the feature. It may be better to regard Feature 7 as an intermittently-used roasting pit or an ash pit associated with nearby Feature 5.

The 1973 excavations at the Cox site recovered 102 sherds; 69 dart and arrow points; 12 point fragments; two ground stone tools; 600 retouched pieces; one bone tool; 9,461 faunal elements; and at least 9,200 pieces of lithic debitage, including 8,828 pieces from 0-10 cm and 372 whole flakes from 10-20 cm (incomplete pieces from 10 to 20 cm and all pieces of lithic debris from below 20 cm (7.9 in) were not tabulated in the 1975 report). Temporally sensitive artifacts included the 69 dart and arrow points and the 102 sherds. Type ascriptions given to the points are shown in Table 3-15. Disregarding unidentified dart and arrow points, the most common type was Gary, comprising over 75% of all identified points and almost 88% of all dart points. Scalloped arrow points are the next most common type, although only four were present. The only new types identified at the Cox site following the 1973 season were one Palmillas and one Bonham (as opposed to the Alba-Bonham category of the previous season). These types all suggest a strong Early Ceramic to Early Caddoan occupation, with some Late and possibly Middle Archaic presence. Of the ceramics recovered during 1973, 84 were plain while only 18 were decorated. Of these 18, 12 were completely undescribed (they were probably miscellaneous incised or engraved), two were described as being miscellaneous incised, and four were given standard type names. These latter included one Crockett Curvilinear Incised, two Pennington Punctated-Incised, and one Canton Incised, and were associated with the Alto focus and secondarily with the Sanders focus (Hyatt and Doehner 1975:28). Specific mention was made of the fact that all of the arrow points and all but one of the ceramic sherds were recovered from the upper 30 cm (11.8 in) of the deposit at the Cox site (apparently along with the vast majority of all of the other artifacts as well). New species added to the list of fauna recovered from the Cox site by the 1973 work included opossum, squirrel, pocket gopher, pine vole, cotton rat, fox (gray?), mink, turkey, and one unidentified species of fish. Based on minimum number of individuals present on the site, deer continued to be most common, with nine individuals; while box turtle, raccoon, squirrel, and rabbit were the next most common.

In regard to conclusions, the 1973 work did not add greatly to the results of the 1972 season (Hyatt and Doehner 1975:35-36). The multiple nature of the occupation at 41HP105 continued to be stressed, although the depth of the Caddoan component was increased from the top 20 cm (7.9 in) to the top 30 cm (11.8 in) based on the new data. The single radiocarbon date from the site was viewed as reinforcing the ceramic association with the Alto and Sanders foci. Recent calibration of this date

has moved it a little later, to A.D. 893 \pm 121 (Bousman, Collins, and Pertulla 1988:Table 8); but it would still fit into an Early Ceramic/Early Caddoan boundary period, and is not out-of-line with the ceramic identifications. Deer and small mammal hunting plus riverine resource collecting are seen as major subsistence activities at the Cox site, with no direct evidence of either wild or domesticated plant utilization. This later fact is probably due to sampling and recovery problems, although it is strange that no plant remains were identified from the single water screened level of Unit 145. Based on surface artifact distribution, it is suggested that occupation had either been contemporaneously by three or four small family units, or occupation of different areas of the site by a single family unit over a longer period of time. No estimates of seasonality patterns are made, but the data are believed to indicate a long period of intensive utilization of all available resources. No mention is made of any distinctions in site utilization from the Archaic to the Caddoan periods, implying that none are believed to exist (Hyatt and Doehner 1975).

As part of its re-evaluation procedure for previously recorded SMU sites, the current survey relocated 41HP105 in the spring of 1987. At that time, the general area of SMU's previous excavations could be identified on the basis of apparent ground disturbance and weed growth suggesting topsoil removal. An examination of the top of the entire knoll surrounding the rise (i.e., the location of the previous work) indicates a wider dispersal of prehistoric material than had been noted previously, plus a scatter of brick on the surface in the northwestern area of the knoll. The 1987 re-evaluation of the Cox site took place in two stages: first, the site was tested and evaluated in regard to the research potential of its historic deposits, and next, its potential as a prehistoric site was reexamined.

Based on the location of the heavy scatter of brick on the western side of the site, its relation to the previous SMU investigations containing historic material, and its setting immediately adjacent to a slough feeding the backswamp south of the river, it was initially thought that this area might contain an industrial site, possibly a sawmill or brick clamp. Both of these possibilities were feasible assumptions since neither type of site normally contains abundant amounts of "domestic" material, and both types usually are located near a prospective clay and/or water source. In addition, both sawmills and brick clamps leave very little behind in the archaeological record.

In order to test the above assumption as to the function of the historic component at the Cox site, a series

of 30 x 30 cm (11.8 x 11.8 in) test squares was excavated across the western end of the site (Units 1-16), screening all fill through 6.4 mm (0.25 in) mesh (see Figure 3-29). A 10 m (32.8 ft) grid was set up over the brick scatter, with the S100 E100 datum stake placed near the center of the visible limits of the scatter. In all, a total of sixteen 30 x 30 cm (11.8 x 11.8 in) units were dug, yielding 550 historic artifacts. Only four of these units contained historic material other than brick: Unit 3 contained two pieces of natural clay/natural clay stoneware (1875-1900) from the same vessel (crossmended); Unit 4 contained a single piece of clear glass; Unit 11 contained a piece of thin metal; and Unit 14 yielded a piece of manganese solarized glass (1880-1920). One large metal cog was also found on the edge of the slough, between S80 E100 and S90 E100. In addition to the historic artifacts, prehistoric materials were recovered from ten of these units and consisted mostly of lithic debitage and fire-cracked rock. At least one point, several sherds, bone, daub, and flaked tools were noted as well. The historic material in this area is estimated to cover under 1925 m² (55 m north-south x 35 m east-west).

Following an examination of the historic material from the previous SMU investigations, it was concluded that, rather than recent dumping, the materials recovered from the excavation block were the remnants of an early twentieth century domestic site. The occupation appeared to be a very short one and the site probably was a tenant house. The material recovered in the 1987 investigations indicated the previous existence of a small outbuilding, probably associated with the domestic component on the western side of the site. The materials recovered from both investigations are compatible in age and type, and support the above conclusions. The metal cog fragment and lack of "domestic" artifacts next to the slough point to a possible small sawmill.

Following the completion of the historic testing on the western side of the Cox site, it became clear that additional work was required to more adequately evaluate the area and depth of the prehistoric deposits. The decision was made to extend the grid of 30 x 30 cm (11.8 x 11.8 in) squares begun by the historic crew, to cover the entire northern portion of the rise on which the cultural remains were located. Using a 30 m (98.4 ft) tape and a Brunton compass, the S100 baseline was extended from the area of historic testing, and across the knoll to the east for a total distance of about 115 m (see Figure 3-29). Secondary north-south lines were laid out at E140 and E180 and a series of 30 x 30 cm (11.8 x 11.8 in) squares excavated along each line. In addition, one new test was excavated at the southern end of the E100 line. In all, 13

additional 30 x 30 cm (11.8 x 11.8 in) units were excavated in the Cox site, placed in a nonsystematic fashion.

On the basis of this work, the prehistoric component at the Cox site was judged to cover a "kidney" shaped area of less than 9000 m² (with maximum dimensions of 120 m east-west and 75 m north-south) on the northern end of the rise. Cultural deposits varied in depth from as shallow as 6-7 cm to as deep as 45 cm in some places, with most of the prehistoric material being found in a brown or grayish brown silty or sandy loam A horizon.

Over 1,050 prehistoric artifacts were recovered from the Cox site during this period of testing, with lithic debris and fire-cracked rock being by far the majority of material (Table 3-16). Six of the 30 x 30 cm (11.8 x 11.8 in) units were found to contain over 100 prehistoric artifacts (Units 2, 7, 22-25), and indicated areas of dense cultural remains (possibly middens) in several areas of the site. Units 22, 23, 24, and 25 all clustered in the southeastern area of the site near the knoll investigated by SMU in the early 1970s. These units suggested the existence of an area of midden located to the south-east of this knoll, probably analogous to the areas of high artifact density which SMU noted to the north and northwest on their surface distribution maps. A second area of high artifact density was found during historic testing in Units 2 and 7 on the western side of the site. The existence of two such areas of artifact concentration, together with the "kidney" shape of the site, raise the possibility of two separate and distinct areas of occupation at 41HP105: one on the eastern side centered around the rise previously investigated by SMU, and the second on the western side of the site.

An examination of Table 3-16 fails to show any unequivocal difference in temporally diagnostic artifacts from either area. Evidence of both Gary dart points and arrow points was found in both areas, as were ceramics. Of the ceramics recovered from 41HP105 during this testing, all are small, plain body sherds. These include grog and grit tempered wares, all lacking surface treatment. No vessel forms are identifiable.

One other difference is noted between the eastern and western portions of the site: a lack of faunal remains in the western area of the site. The soil in this part of the site is much sandier and easier to dig than that found on the eastern rise and this apparently made a great deal of difference in regard to bone preservation. Another observation which may be made from this testing data is the lack of any preserved charcoal or macrobotanical remains. Although the fill of each unit was screened through 6.4 mm (0.25 in) mesh, the testing failed to recover any significant amounts of charcoal and no nut

shell, a material recovered in great quantities from other sites in the project area. This fact would seem to support SMU's original contention that no macrobotanical remains were preserved at the Cox site.

As a result of this testing at 41HP105, a more complete understanding of the size and nature of both the prehistoric and historic occupations was gained. The size of the prehistoric occupation is determined to be quite a bit larger than SMU's original estimate, although the additional testing did little to change the estimates of depth of deposit or dates of occupation. The historic component of the Cox site is more systematically investigated than was previously the case; determined to be more likely an early twentieth century domestic habitation with domicile, outbuildings, and associated sawmill set, rather than a more recent dump.

Based on this phase of testing, it was decided not to undertake any further work at 41HP105. The historic component of the Cox site was felt to have very little research potential, given the low artifact density and the apparent short-term nature of the site occupation. Therefore, no further work on the historic component at 41HP105 was conducted subsequent to this phase of testing. Although the impact of SMU's previous work at 41HP105 is of limited extent in regard to the entire prehistoric site area now defined, it is also true that only the eastern rise of the site shows faunal preservation, exactly that area most heavily impacted by SMU's work. No portion of the site shows the degree of macrobotanical preservation demonstrated by the midden areas at 41HP78, for example. For these reasons, no further work is recommended at 41HP105.

41HP116:

The W. S. Long #2 Site

This small, multicomponent prehistoric site was initially located by North Texas State University in the fall of 1986 (Perttula 1988). It is situated on floodplain deposits at the base of Hurricane Hill (41HP106) (Figure 3-30), ca. 350 m (1148.3 ft) east-northeast of the main area of prehistoric occupation on site 41HP106. The site area is at an elevation of ca. 122-123.1 m (400-404 ft) amsl with the surface soil reported to be Woodtell loam (Lane 1977).

The site is situated about 1.35 km (2.2 mi) southeast of the modern channel of the South Sulphur River, and may be associated with an old river channel represented today by a slough about 90 m (295.3 ft) north of the site (Perttula 1988:5-18). The site is an old overgrown clearing marked by a dense understory of greenbrier, Johnson grass, and forbs with scattered small oak, bois

TABLE 3-16

Summary Of Artifacts By Class From Site 41HP105, 1987 Investigations

Unit	Level	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Ceramics	Baked Clay*	Bone*	Charcoal*	Burned Rock
Surface	—	—	2	—	2	—	—	—	—	—	—
2	—	—	5 ¹	1 ²	123	3	—	56	1	—	57
4	—	—	1 ³	—	8	—	—	—	—	—	1
5	—	—	—	—	10	—	—	—	—	—	4
6	—	—	—	—	44	—	—	—	—	—	2
7	—	1 ⁴	3	—	76	—	—	—	—	—	32
8	—	—	—	—	18	—	2	2	—	—	5
11	—	—	—	—	14	—	—	—	—	—	3
12	—	—	1	—	14	—	1	—	—	—	5
13	—	—	—	—	1	—	—	—	—	—	—
14	—	—	—	—	5	—	—	—	—	—	—
17	—	—	—	—	3	—	—	—	—	—	—
18	—	—	1 ⁵	1 ⁶	17	1	—	—	—	—	1
21	—	—	—	—	—	—	—	—	—	2	3
22	1	—	1 ⁷	—	57	—	—	2	24	—	22
	2	—	—	1	18	—	—	2	21	—	5
23	—	—	1	2	71	2	—	19	—	6	31
24	1	—	—	1	61	—	2	7	3	—	45
	2	—	—	—	16	—	—	—	—	—	4
25	1	1 ⁴	1	3	98	1	1	4	7	—	74
	2	—	—	—	1	—	—	—	—	—	—
26	—	—	—	—	17	—	—	—	—	—	6
27	—	—	—	—	20	—	2	—	—	—	8
28	—	—	—	—	10	—	—	—	—	—	—
29	—	—	—	—	1	—	—	—	—	—	—
Total		2	16	9	705	7	8	92	56	8	308

* Baked clay, bone, and charcoal are enumerated in grams; all other categories are enumerated in counts.

1 Includes one apparent Gary preform.

2 Spokeshave.

3 Apparent Gary preform.

4 Unidentified arrow point.

5 Arrow point preform.

6 Burin.

7 Aborted Gary Point.

d'arc, and hackberry trees and saplings (Pertulla 1988:5-18).

The site is located in the vicinity of a bulldozer cut across a portion of the spillway right-of-way in this area. Artifacts were reportedly visible in the back dirt of this trench as well as in the trench's walls. Shovel testing in the vicinity failed to penetrate a sterile colluvial deposit

covering the surface and did not turn up any artifactual material. A profile of the bulldozer trench showed a ca. 30 cm (11.8 in) thick colluvial deposit overlying 60 cm (23.6 in) of artifact bearing sandy loam to sandy silt loam (Pertulla 1988:Figure 5-8). The majority of prehistoric material was present in Zone III, a 30 cm (11.8 in) thick deposit of sandy loam mottled with charcoal.

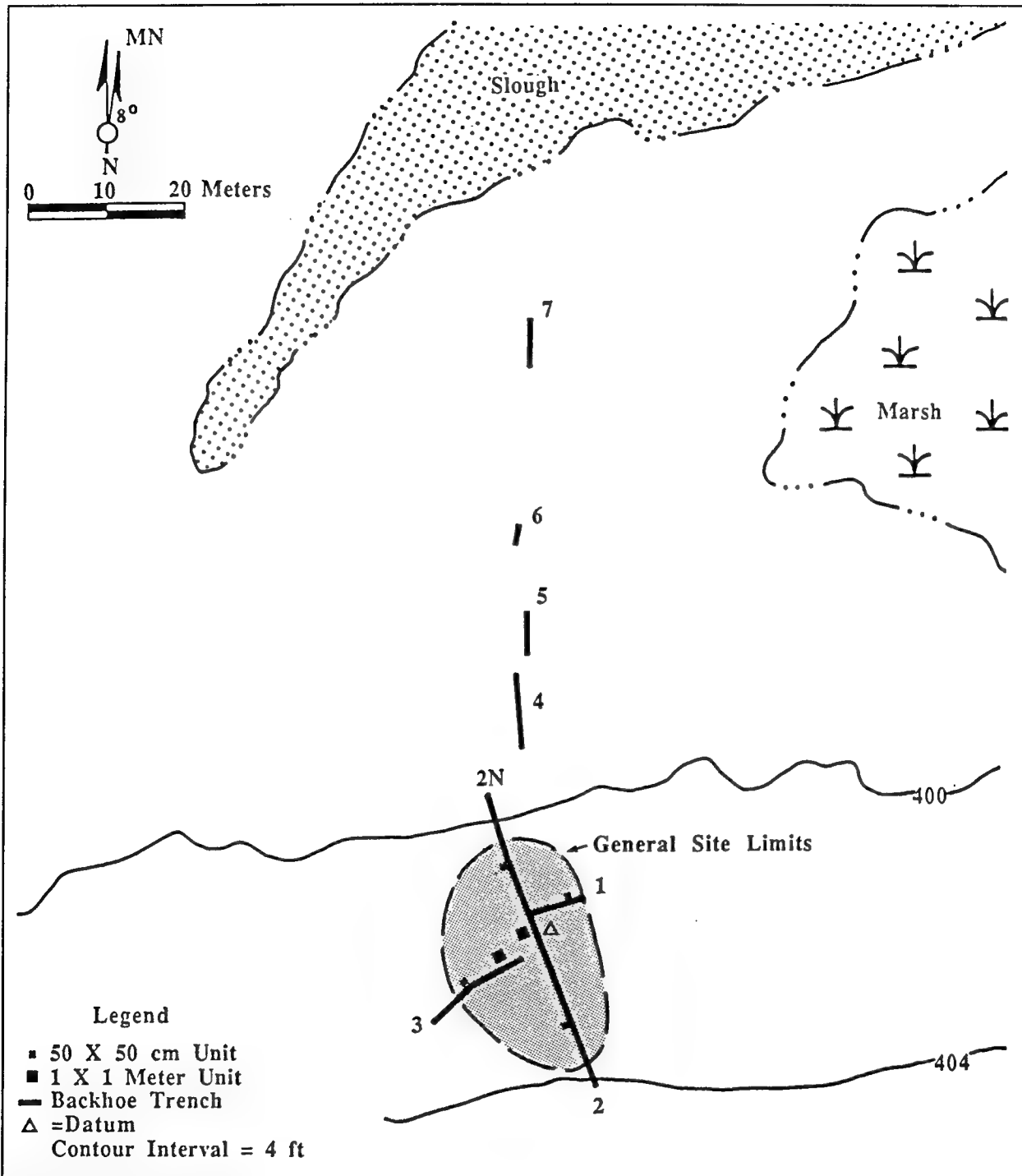


Figure 3-30. Major topographical features and location of excavations at site 41HP116.

Undecorated ceramics from the bulldozer back dirt piles suggested a date of A.D. 1200, based on crossdating with other East Texas sites (Pertulla 1988:5-20).

Following its initial recording, further investigations were carried out at 41HP116 by NTSU in order to "aid in

the assessment of its research potential and contextual integrity" and to obtain "additional information on the site's geomorphic context, as well as basic data on the temporal span of occupation, and the possibility that the site could contain stratified cultural deposits" (Pertulla

1988:5-24). In order to do this, two backhoe trenches were placed to the north and west of the bulldozer trench (Backhoe Trenches 1 and 3, respectively) in search of buried cultural deposits (Figure 3-31). Segments of walls from both backhoe trenches were cleaned, drawn, and described, making note of the vertical and horizontal distributions of all artifacts found.

Subsequent to completion of the backhoe trenching, a 10 m² (32.8 ft²) area southwest of the bulldozed trench was cleared of sterile overburden and 0.25 m² of artifact-bearing deposits were removed by backhoe and screened (Excavation Unit 1 in Figure 3-31). The initial portion of Unit 1 was excavated in levels of 0-25 cm and 25-40 cm below the bulk of the colluvium; while a later northward extension was excavated in levels of 0-20, 20-35, 35-40, 40-50, and 50-60 cm below the colluvium (60-65 cm below the colluvium equals ca. 95-100 cm below the surface in this area: see Perttula 1988:5-26).

As a result of the backhoe work, a series of soil horizons are defined for site 41HP116 (Table 3-17). In general, zones Ao, I, II, and IIA appear to be colluvial deposits, presumably originating from Hurricane Hill, directly south of the site. These zones appear to be sterile and range in thickness from 30-50 cm (Perttula 1988:5-27). Below this is a sequence of three zones (III, IV, and V) which appear to be composed of varying consistencies of sandy loam, loamy sand, and silty loam. All three of these horizons contain cultural material, and the deposit as a whole is believed to be alluvial in origin, ranging in thickness from 70-100 cm (Perttula 1988:5-26). The basal zone (VI) is composed of a dark gray clay to silty clay, also of floodplain origin, apparently culturally sterile. The backhoe trench profiles suggest that Zone III (e.g., the charcoal stained zone noted in the bulldozer trench) thins from north to south along Trench 2 and considerably thins from west to east in Trench 1. What happened to Zone III to the west of Trench 2 is unclear (Perttula 1988:5-25). As a result of this, the thickest part of Zone III is believed to measure about 15 m (49.2 ft) northwest to southeast, and an unknown distance east to west (Perttula 1988:Figure 5-7).

Dating of the soil zones from 41HP116 is based on a combination of both radiometric and artifact crossdating techniques. From the backhoe trench profiles, a Perdiz arrow point was recovered from Zone III (exactly where within Zone III this was found is not reported). A soil humate sample was collected from Zone III close to the estimated center of the site with a date of A.D. 1430 ± 70 (calibrated to either A.D. 1420 ± 70 or A.D. 1330 - 1430 depending on the calibration technique; Perttula 1988:5-26). A plain, grog tempered sherd was collected at the contact of Zones III and IV, and was thermoluminescence

dated to A.D. 990 ± 100. In Excavation Unit 1, the greatest quantity of material was recovered from Zone V, immediately above the dark gray clay of Zone VI. A Gary dart point (variety Camden) was recovered from Zone V of the Unit 1 extension, suggesting an Early Ceramic period component at that level (Perttula 1988:5-26).

This initial work at 41HP116 resulted in the recovery of 235 lithic artifacts, including 181 pieces of lithic debitage, 33 fragments of fire-cracked rock, and 21 stone tools or tool fragments (Perttula 1988:Tables 6-1 and 6-2). The lithic debitage includes eight primary elements, 62 secondary elements, and 111 tertiary elements. Of these, over 95% (172) are derived from local quartzites, while only 3.8% (7) are definitely nonlocal in origin (chert and novaculite), and the remaining 1% (2) are classified as "other" (i.e., sandstone, petrified wood, and chalcedony). Of the stone tools, five are classified as cores, two as bifaces, three as dart points (all Gary), two as arrow points (e.g., one Perdiz and one preform), seven as unifaces, one as a sidescraper, and one as a pitted stone.

All of the chipped stone tools are made on local quartzite. In addition to the stone artifacts, NTSU recovered five plain sherds from 41HP116. All of these are described as tempered with grog, or with grog in combination with something else (i.e., bone or grit), and may indicate an Early Ceramic occupation at the site.

Based on the results of its work, NTSU suggested the likelihood that the cultural deposits at 41HP116 accumulated rather rapidly, and that evidence of "distinct, discrete occupation surfaces" is present at the site; protected from historic period disturbance by the site's geological context (Perttula 1988:5-27). In light of such a possibility, further testing was recommended for 41HP116, requiring additional backhoe trenching and geomorphological work.

Site 41HP116 was visited by SMU's crew in the spring of 1987, as part of a program of further testing and evaluation for several sites specifically recommended by NTSU. This work was to involve additional backhoe trenching and more controlled hand excavation of certain artifact bearing deposits at the site. Initial work involved the location and reexcavation of NTSU's old trenches (Trench 1 and 2). Backhoe Trench 1 was redug to ca. 7 m (23 ft) long, almost exactly corresponding with NTSU's Trench 1. Backhoe Trench 2 was extended beyond the limits of the original trench, going an additional 1.5 m (4.9 ft) to the south and 9 m (29.5 ft) to the north (the northern extension was designated Trench 2-North). A third, and new, backhoe trench was excavated to the west in order to define the limits of the artifact bearing deposits (particularly Zone III) in that direction. This

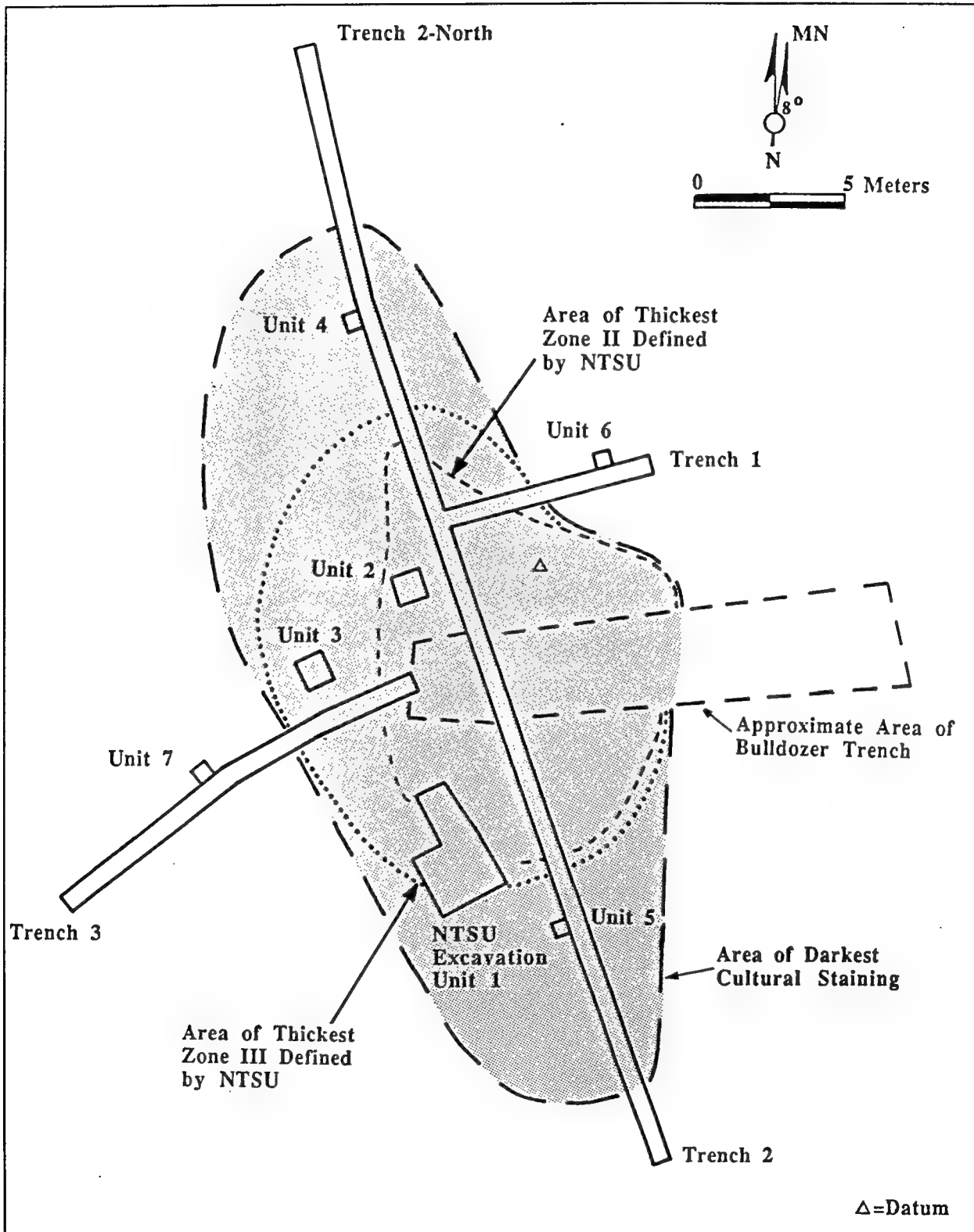


Figure 3-31. Detailed view of all excavations at site 41HP116.

TABLE 3-17

Soil Zones Identified By NTSU At 41HP116 (After Perttula 1988:Table 5-1)

Zone	Description	Color
Ao	Organic horizon: loamy sand	grayish brown (10YR5/2)
I	Loamy sand/sandy loam	yellowish brown (10YR5/4)
II	Loamy sand with gravel and clay lens	yellowish brown (10YR5/4)
IIA	Sandy loam (with charcoal mottling)	yellowish brown (10YR5/6)
III	Sandy loam (artifact bearing zone)	very dark grayish brown (10YR3/2) to grayish brown (10YR5/2)
IV	Loamy sand (artifact bearing zone)	light grayish brown (10YR6/2)
V	Sandy loam/silt loam (artifact bearing zone)	light grayish brown (10YR6/2)
VI	Clay/silty clay	very dark gray (7.5YR3/0)

trench, Backhoe Trench 3, was ca. 13.8 m (45.3 ft) long and oriented roughly perpendicular to Trench 2/2-North. The profiles of each trench were cleaned with shovel and trowel, and one profile from each trench was recorded in its entirety with scale drawings: the south wall of Trench 1, the west wall of Trench 2/2, and the north wall of Trench 3 were recorded (Figure 3-32). NTSU's previously described soil zones (see Table 3-17) were identified and recorded on each profile. The upper colluvial deposit (Zones I, II, and IIA), the buried artifact bearing deposit (Zones III, IV, and V), and the basal deposit of dark gray silty clay (Zone VI) were all easily identifiable.

Zone VI as described by NTSU is a very dark gray (7.5YR3/0) clay/silty clay, and its appearance in the trenches matches this description reasonably well. It was extremely moist due to ground water and shows a high degree of mottling with lighter gray silt/clay. It is also heavily mottled and stained with iron concretions, presumably a post-depositional weathering phenomenon since the iron staining is present in both Zones V and VI. Zone VI is present in all of the trenches and shows a 4.7% slope from south to north (dropping 1.7 m in 36 m). A darkening on the surface of Zone VI may indicate a paleosol, possibly truncated by a later erosional episode as suggested by the slope of the surface of Zone VI.

Zones III, IV, and V are composed of varying grades of sandy loam, loamy sand, and silt loam, with Zone III characterized by a very dark grayish brown color. All of these zones have the appearance of being the same depositional unit, with differences in color and consistency due to weathering (e.g., iron staining and

mottling become progressively heavier from Zone IV to Zone V). Grain-size analysis suggests a similar aeolian origin for all three zones. While a darkening presumably due to soil development is present at the top of this unit throughout all three trenches, Zone III proper, an excessive darkening probably due to cultural activity is confined to a more limited area. The area of darkest Zone III staining is oriented generally northwest to southeast, and measures ca. 30.0 m (98.4 ft) long by 13.5 m (44.3 ft) wide (see Figure 3-31). The area where Zone III is the thickest is roughly circular, measuring about 16.0 m (52.5 ft) northwest to southeast by 13.5 m (44.3 ft) northeast to southwest, and corresponds generally with the area previously identified by NTSU. Zone III in the central portion of the site shows strong indications of having been truncated by an erosional episode, with a surface characterized by erosional runnels filled with a gravelly sand clay (see Figure 3-32). The surface of Zone III shows a drop of 1.25 m along the 37 m of Trench 2/2-North from south to north, a 3.38% slope.

Subsequent to the excavation of Backhoe Trenches 1, 2, and 3 on site 41HP116 itself, a series of four additional trenches (designated 4, 5, 6, and 7) were excavated north of the site (see Figure 3-30). These trenches were excavated in an effort to better understand the relationship between the site deposits and floodplain clay north to the slough, which had been proposed to be an old channel of the South Sulphur River. All four of these trenches seemed to show the same basic sequence: a very dark gray to black clay, presumably of floodplain origin, overlying a more mottled dark gray clay, which

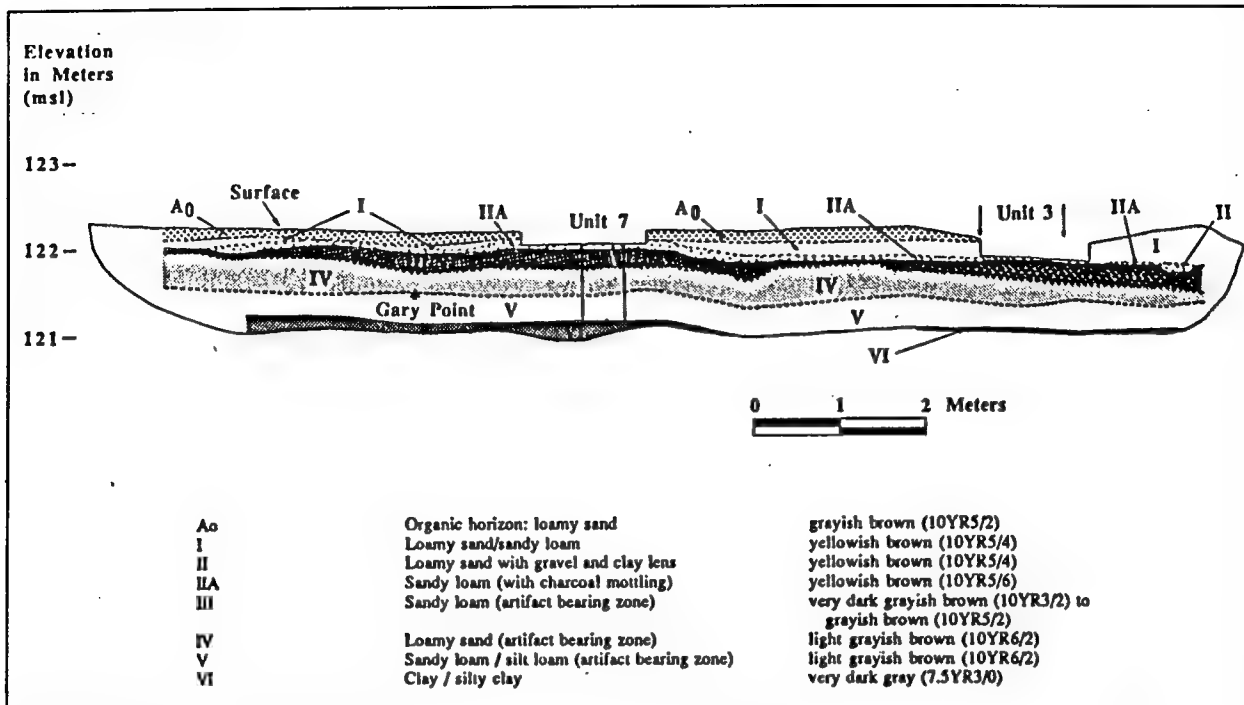


Figure 3-32. Profile of the north wall of Trench 3 at site 41HP116. Trench is 13.8 m long.

appears to be analogous to Zone VI underlying site 41HP116. This lower clay is most easily identifiable in Trench 4, ca. 7 m (22.9 ft) north of Trench 2-North. To the north, in Trench 7, only the darker, more recent floodplain clay is present. None of the four trenches revealed the presence of any deposits analogous to Zones I through V on the site.

Hand excavation at 41HP116 involved two 1 x 1 m (3.28 x 3.28 ft) squares placed in the approximate center of the site, west of Trench 2 and north of Trench 3 (Excavation Units 2 and 3); plus four 50 x 50 cm (19.68 x 19.68 in) squares placed beyond the thickest area of Zone III along each of the trenches (Unit 4 at the intersection of Trench 2 and 2-North, Unit 5 midway along the southern portion of Trench 2, Unit 6 near the eastern end of Trench 1, and Unit 7 in the middle of Trench 3). Excavation procedures for each of these units was the same: first, the backhoe was used to remove most of the colluvial material above Zone III, then the unit was hand excavated in 10 cm thick arbitrary levels and the fill screened through 6.4 mm (0.25 in) wire mesh. Each unit was terminated at the top of, or just into, Zone VI. A total of 459 artifacts were recovered from these test units, including 361 pieces of lithic debitage, 85 fragments of burned rock, two cores, five bifacial preforms, and six tools (Table 3-18). No ceramics were recovered from these excavations and the only temporally diagnostic

tools found are the broken base of a Gary point from Level 8 of Unit 7 (Zone V) and a complete Gary point from the Zone IV/V interface in Backhoe Trench 3 (see Figure 3-32). Of the remaining tools, three were retouched unifaces, and one was a hammerstone.

When only the artifacts recovered from unmixed soil zones are examined, it appears that Zone IV contains the most artifacts, suggesting an occupation horizon (or several) within this zone (Table 3-19).

Zone V contained the next highest frequency of material, while Zone III contained the least. Standardizing these figures for different volumes excavated changes these relationships to some extent (Table 3-20). Zone IV continues to show the greatest frequency of cultural materials per cubic meter, but now Zone III shows the next highest frequency and Zone V the least. These data suggest the most intense occupation occurred within Zone IV, with a less intense occupation within Zone III. The status of the material in Zone V, however, is still equivocal, since it is possible that this material resulted from the downward migration of artifacts into the soft sandy loam matrix. A further examination of the standardized frequencies of artifacts per zone for individual units, however, suggests that this is not the case (Table 3-21). In the majority of units, Zone IV shows the highest frequency of artifacts per cubic meter, but in both Units 2 and 3 Zone III shows significantly

TABLE 3-18

Excavated Artifacts From 41HP116, 1987 Investigations By SMU

Unit	Level	Soil Zone	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Ground & Battered Stone	Baked Clay*	Charcoal ¹	Burned Rock
2	1	IIA/III	—	—	—	9	—	—	—	+	5
	2	III	—	—	—	19	—	—	—	+	1
	3	III/IV	—	—	—	12	—	—	—	—	3
	4	IV	—	2	—	24	—	—	—	—	12
	5	IV	—	—	—	27	—	—	—	+	3
	6	IV/V	—	—	2	23	—	—	—	+	5
	7	V	—	—	—	23	1	1 ²	—	+	—
	8	V	—	—	—	12	1	—	—	+	4
	9	V/VI	—	—	—	1	—	—	—	—	—
3	1	IIA/III	1	—	—	52	—	—	—	—	4
	2	III	—	—	—	14	—	—	—	—	1
	3	III/IV	—	—	—	15	—	—	—	—	—
	4	IV	—	—	—	18	1	—	—	—	2
	5	IV	—	—	—	13	—	—	—	—	2
	6	IV/V	1	—	—	19	—	—	—	—	10
	7	V	—	—	—	4	—	—	—	—	2
	8	V	—	—	—	3	—	—	—	—	10
	9	V/VI	—	—	—	—	—	—	—	—	2
4	1	I/IIA	—	—	—	1	—	—	—	—	—
	2	IIA/III	—	—	—	1	—	—	—	—	—
	3	III/IV	—	—	—	1	—	—	—	—	—
	4	IV	—	—	—	2	—	—	—	—	—
	5	IV/V	—	—	—	1	—	—	—	—	—
	6	V	—	—	—	1	—	—	—	—	2
	7	V	—	—	—	1	—	—	—	—	—
	9 ³	V	—	—	—	1	—	—	—	—	—
5	1	I/IIA	—	—	—	3	—	—	—	—	—
	2	IIA/III	—	—	—	2	—	—	—	+	—
	3	III/IV	—	—	—	4	—	—	—	+	—
	4	IV	—	—	—	9	—	—	—	+	—
	5	IV	—	—	—	1	—	—	—	—	—
	6	V	—	—	—	2	—	—	—	—	—
	7	V	—	—	—	3	—	—	—	—	—
6	1	IIA/III/IV	—	—	—	1	—	—	—	—	—
	2	IV	—	—	—	2	—	—	—	—	—
	4	IV/V	—	—	—	3	—	—	—	—	2
	5	V	—	—	—	8	—	—	—	—	—
	6	V	—	—	—	3	—	—	—	—	—
	7	V	—	—	1	4	—	—	—	—	1

Table 3-18 (cont.)

Unit	Level	Soil Zone	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Ground & Battered Stone	Baked Clay*	Charcoal ¹	Burned Rock
7	1	IIA/III	—	—	—	1	—	—	—	+	—
	2	III	—	—	—	1	—	—	—	+	—
	3	III/IV	—	—	—	3	—	—	—	+	—
	4	IV	—	—	—	3	—	—	—	+	6
	5	IV	—	—	—	1	—	—	—	+	—
	6	IV/V	—	1	—	4	—	—	—	—	3
	7	V	—	—	—	6	—	—	—	—	5
	8	V	1 ⁴	—	—	—	—	—	—	—	—
BHT	3	IV/V ⁵	1 ⁶	—	—	—	—	—	—	—	—
Total			4	3	3	361	3	1	1	+	85

* Baked clay is enumerated in grams; all other categories with the exception of charcoal are enumerated in counts.

¹ Charcoal is enumerated simply by presence/absence.

² Hammerstone.

³ Seven (7) cm thick level.

⁴ Gary point base.

⁵ Interface.

⁶ Complete Gary point.

high frequencies of artifacts, while in Unit 6, the greatest artifact frequency is from Zone V. This suggests that all three zones do indeed contain occupation horizons, with variation only in intensity of occupation (or perhaps area of occupation) and with Zone IV being either the most intensively occupied, or covering the largest area of occupation. When the distribution of units with frequencies of more than 100 artifacts per cubic meter are plotted, we get a better idea of the probable extent of occupation in each zone (Figure 3-33).

The area of densest cultural material in Zone V includes Units 2, 6, and 7 (with Unit 3 included between Units 2 and 7). This area is elongated, northeast to southwest, and covers ca. 120 m² (393.7 ft²). The area of highest density in Zone IV includes Units 2, 3, 5, and 7, covering a roughly circular area of ca. 200 m² (656.2 ft²). The highest density area of Zone III was apparently more circumscribed, including only Units 2 and 3, in an area of around 60 m² (196.8 ft²). The impression of a smaller area of high artifact density in Zone III may be more a result of the thinness of the zone and the lack of unmixed Zone III levels in Units 4, 5, and 6, than actually due to a smaller area of high density.

These data, sparse as they are, do support NTSU's original interpretation of Zones III, IV, and V at 41HP116 as being the result of slow aggradation with cultural occupations associated with each zone. What little temporal data collected by this phase of investigations at the site also support an Early Ceramic date for the lower portions of this sequence: presumably all of Zone V and at least part of Zone IV. Unfortunately, no temporal diagnostics were recovered from the majority of Zones II or IV, and it was impossible to verify the existence of any later material at the site.

The controlled excavations at 41HP116 failed to identify any cultural features throughout Zones III, IV, or V; and also failed to identify any stratigraphy which could be attributed to cultural, as opposed to natural, factors. Although flecks of charcoal were identified in a number of excavated levels, no faunal material, no macrobotanical remains (such as nutshell), and no mussel shell were found in any of the excavation units or in any of the backhoe trenches. Despite the apparently stratified nature of the deposits at 41HP116, the lack of features, identifiable surfaces, and faunal and macrobotanical remains, together with a relatively low artifact yield

TABLE 3-19

Artifactual Contents Of Unmixed Soil Zone At 41HP116

Soil Zone	Excavated Volume*	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Battered Stone	Burned Rock
III	0.225	—	—	—	34	—	—	2
IV	0.575	—	2	—	100	1	—	25
V	0.770	1	—	1	71	1	1	24

* Volume is measured in cubic meters (m³).

TABLE 3-20

Standardized Artifact Content Per Zone

Zone	Number of Artifacts
III	160.0
IV	222.6
V	128.6

resulted in the decision not to do any further work at this site following the completion of the testing.

41HP118:
The W. S. Long #3 Site

This buried floodplain site was located and initially examined by North Texas State University in the dam embankment area during 1986 (Perttula 1988:5-27 to 5-30). It was located during exploratory backhoe trenching on a low rise next to an old abandoned channel of the South Sulphur River near the centerline of the dam embankment area, ca. 600 m (1968.5 ft) northwest of Hurricane Hill (Figure 3-34). This rise is at ca. 121.3 m (398 ft) amsl and is not more than 60 cm (23.6 in) above the rest of the floodplain. The site is ca. 50 m (164 ft) west of a paleochannel of the South Sulphur River. This channel runs from southwest to northeast, paralleling the current river channel before being cut off by an artificial levee system ca. 3.1 km (1.93 mi) downstream from the site. All surface vegetation was removed from the site

area by bulldozer, but aerial photographs published in the 1970s show the site area partially in cleared fields and bottomland forest adjoining the old river channel (Lane 1977). Surface soil consists of black to very dark gray Kaufman clay (Lane 1977).

The NTSU trenches revealed the presence of lithic debitage at a depth of ca. 75 cm (29.5 in) below the surface in a possible buried soil zone (see Appendix E). This buried soil also is noted as being characterized by high concentrations of charcoal (Perttula 1988:5-29). The material above this buried soil is described as grayish brown (10YR5/2) to light olive gray/pale olive (5YR6/2-3) silty clay, while the soil itself is apparently developed on a dark olive gray/olive gray (5YR3/2-5/2) to olive (5Y5/3) clay going to a depth of at least 240 cm (94.5 in) below the surface (Perttula 1988:Figure 5-2). The difficulty of screening this matrix by hand prevented systematic screening of the back dirt but some additional pieces of lithic debris and fragments of fire-cracked rock were recovered following heavy rains (Perttula 1988:5-29). As a result of this preliminary work, NTSU suggested that further investigations, including detailed backhoe work, be carried out at site 41HP118 (Perttula 1988:7-12).

During the spring of 1987, SMU crew members relocated site 41HP118 for further testing and evaluation. NTSU's old trenches (Trenches 5 and 5A) were relocated and reexcavated with a backhoe (Figure 3-35). Trench 5A, the NTSU trench in which the cultural material was identified, was re-excavated 12.5 m (41 ft) long and then extended an additional 6.5 m (21.3 ft) further northwest. This extension was designated Trench 5A-West. The old Trench 5 was relocated 8 m (26.2 ft) southeast of Trench 5A and re-excavated for 3 m (9.8 ft). The presence of a buried dark A horizon at about 70 cm (27.5 ft) below

TABLE 3-21

Standardized Artifact Frequencies By Volume Of Unmixed Levels At 41HP116

Unit	Zone	Volume (m3)	Artifacts	Artifacts per m3
2	III	0.1	20	200
	IV	0.2	68	340
	V	0.2	41	205
3	III	0.1	—	150
	IV	0.2	36	180
	V	0.2	19	95
4	IV	0.025	2	80
	V	0.0925	5	54.1
5	IV	0.05	10	200
	V	0.0875	5	57.1
6	IV	0.05	2	40
	V	0.115	17	147.8
7	III	0.025	1	40
	IV	0.05	10	200
	V	0.075	12	160

surface was confirmed in Trench 5A. Troweling of the north wall of this trench also confirmed the presence of lithic debris and fire-cracked rock associated with the buried soil, plus three separate charcoal concentrations between 180-220 cm below the surface within a lighter colored clay below the buried soil. A sample of charcoal from 220 cm below the surface in Trench 5A yielded a C-14 date of 1050 ± 100 B.C. (SMU-1883, calibrated).

Two new trenches were excavated to the northwest of Trench 5A/5A-West on approximate alignment. Trench 1 was placed about 2.5 m northwest of Trench 5A-West and was about 8.5 m (27.9 ft) long. The second trench, Trench 2, was an additional 4.5 m (14.8 ft) beyond Trench 1 and was about 4.75 m (15.6 ft) long. Neither of these trenches revealed artifacts in their side walls or in the back dirt. The westernmost of these trenches appears to contain a black clay, similar to that noted in trenches close to the river but different from that noted in Trench 5A/5A-West. Trenches 5, 5A/5A-West, 1, and 2 indicate that cultural material is confined to a ca. 13.5 m (44.3 ft) long area within Trench 5A/5A-West running northwest to southeast. A ca. 5 m (16.4 ft) long trench (Trench 3) was excavated out at right angles from Trench 5A to the southwest in hopes of identifying the

limit of the site in this direction. No artifacts were found in the walls of this trench, but small amounts of charcoal were noted both in the buried A horizon and in the underlying clay. Two final backhoe trenches were dug parallel to Trench 5A/5A-West to the northeast and the southwest in an effort to better define site limits. Backhoe Trench 4 was 5.5 m (18 ft) long and placed about 11 m (36.1 ft) northwest of Trench 5A, while Trench 6, about 6 m (19.68 ft) long, was excavated about 17 m (55.8 ft) northeast of Trench 5A/5A-West. Neither of these two trenches contained any indication that the cultural remains extended that far in either direction. Based on this data, it was estimated that site 41HP118 covered an area of less than 175.5 m^2 , and measured about 13 m (42.6 ft) north-south by 13.5 m (44.3 ft) east-west.

This site received extensive geomorphological investigation (See Appendix E:E-8). It is located on an abandoned channel of the South Sulphur River and is buried beneath floodplain clays. The A horizon yielded a C-14 date (humate) of 1220 ± 70 B.C. (SMU 1970, calibrated). A charcoal date from the C horizon yielded an age of 1050 ± 100 B.C. (SMU 1883, calibrated). The sediment size analysis (see Appendix E) indicates that the channel was shifting away prior to occupation. The two

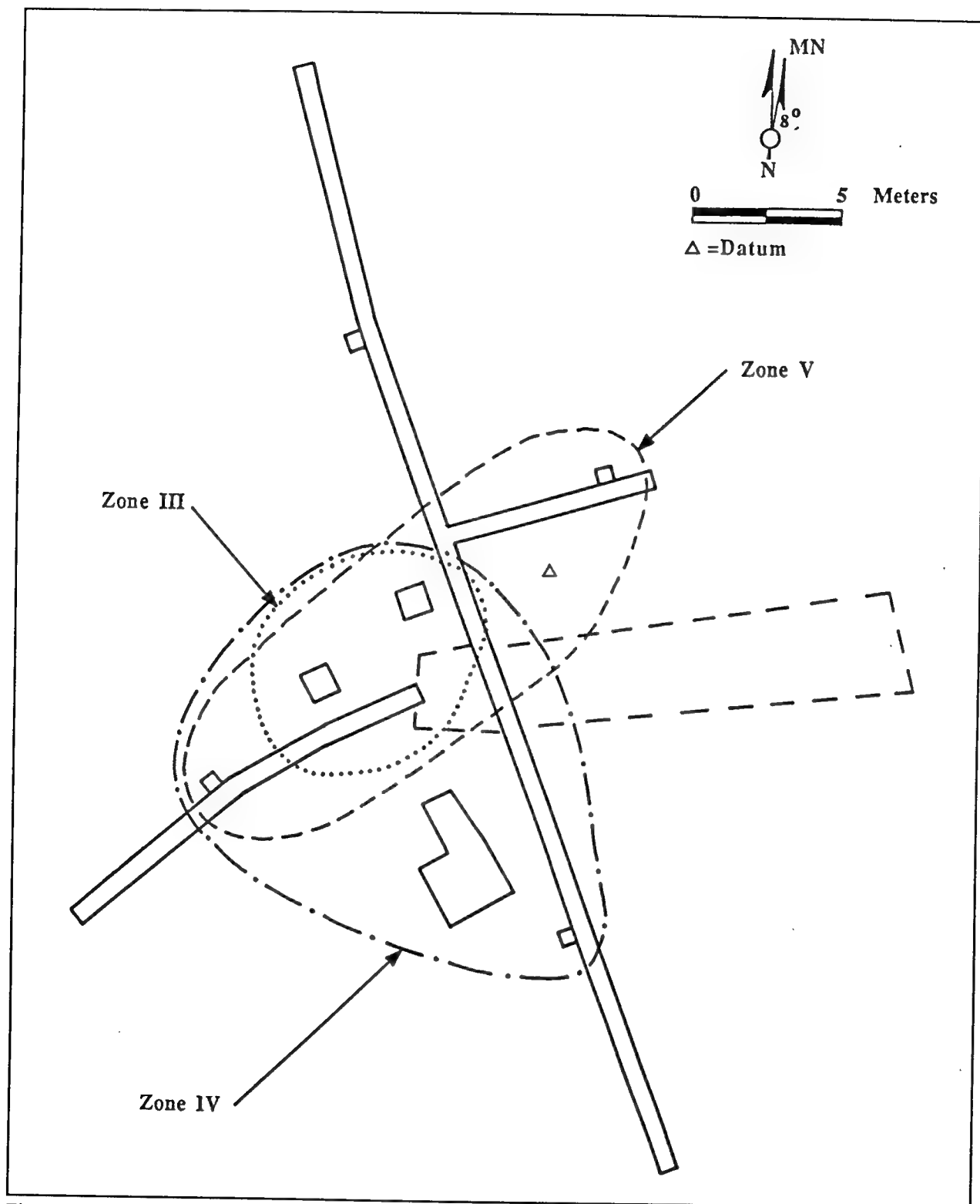


Figure 3-33. Location of cultural and soil zones mentioned at 41HP116.

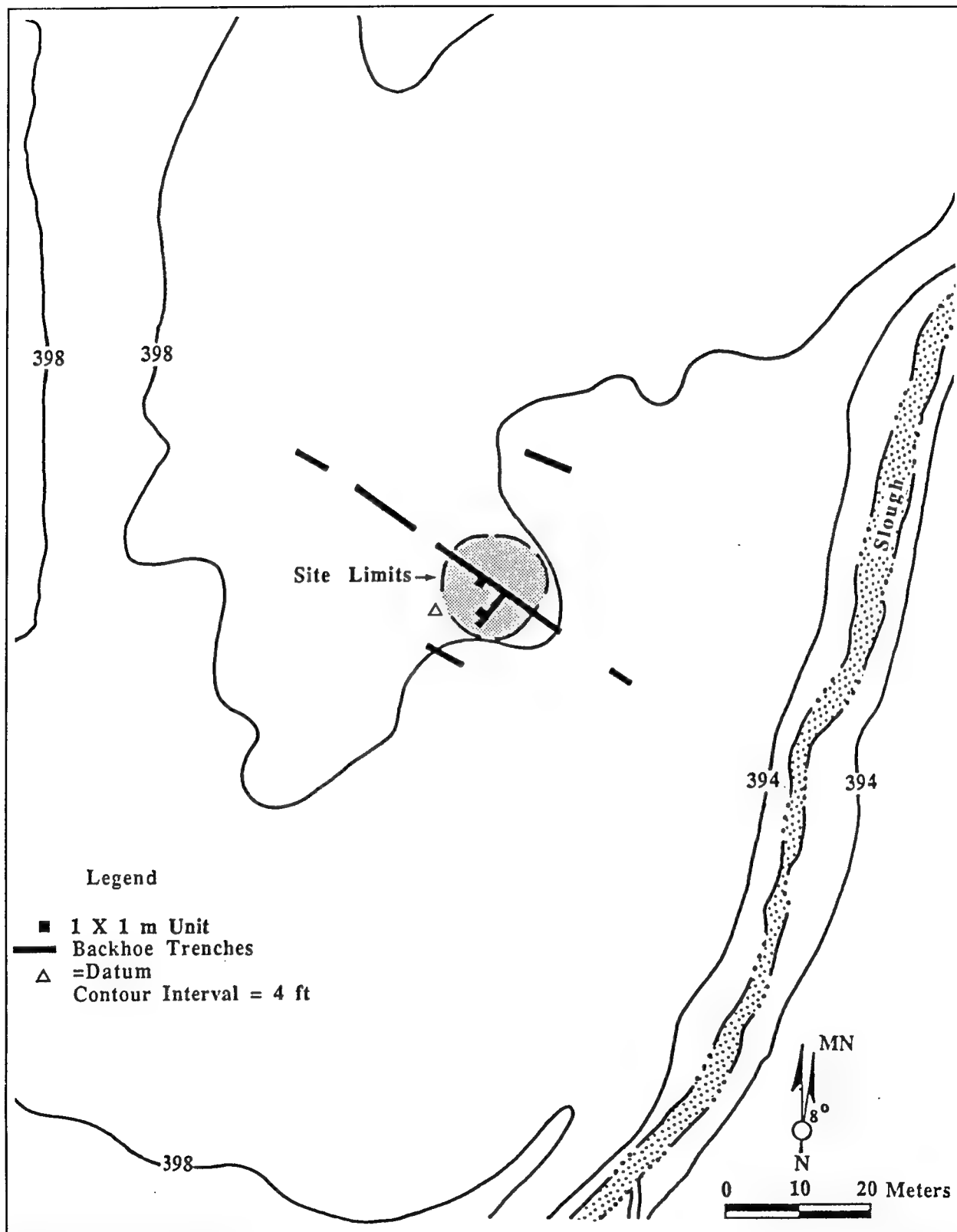


Figure 3-34. Major topographical features and location of backhoe trenches at site 41HP118. See Figure 3-35 for trench designations.

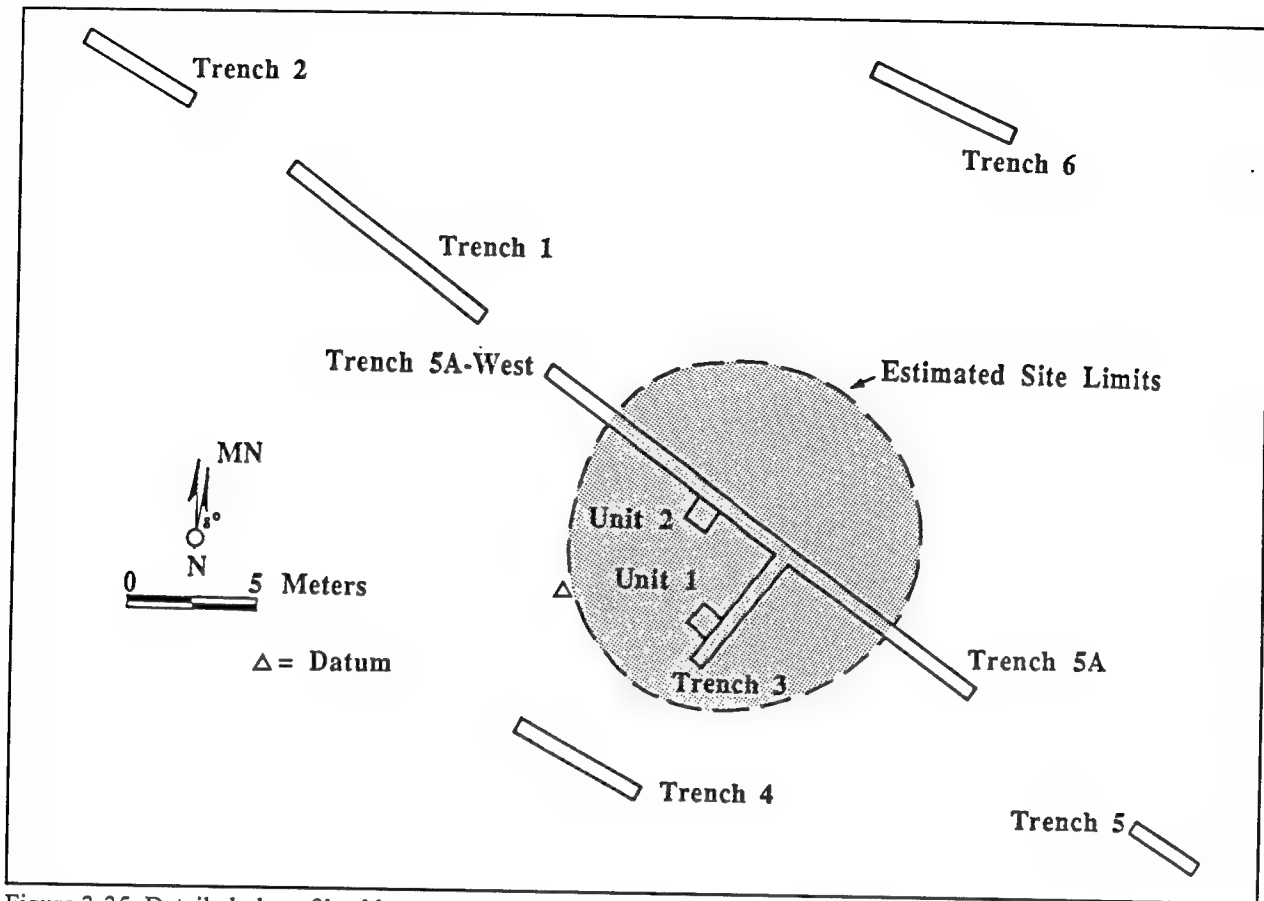


Figure 3-35. Detailed plan of backhoe excavations and other units at site 41HP118.

dates are not in stratigraphic succession. The charcoal date is 1.3 m (4.3 ft) deeper, and probably more accurate. The humate date is nearly 200 years older, but is from the surface soil horizon. The humates were probably derived from older parent materials and do not reflect the true date of sediment deposition.

An examination of the northern profile of Trench 5A/5A-West (Figure 3-36) revealed that of 18 artifacts identified in the profile, none were more than 25 cm (9.8 in) below the top of the buried A horizon, and most were quite a bit less (the mean depth was ca. 14 cm [5.5 in] below the top of the buried A horizon). In an effort to obtain a sample of cultural material from a controlled stratigraphic context, two 1 x 1 m (3.28 x 3.28 ft) squares were placed near the estimated center of the site. The backhoe was used to remove the upper unit of sterile silty clay overlying the buried A horizon prior to beginning excavation. Each square was excavated with hand tools and the matrix was screened through 6.4 mm (0.25 in) mesh. Unit 1 was placed off of the north-west side of Trench 3, about 1 m from the south-west end of the

trench; while Unit 2 was placed off Trench 5A, about 7.5 m (24.6 ft) from the northwest end of Trench 5A-West. Unfortunately, neither unit could be completed prior to a period of heavy rain which, due to the impermeable nature of the floodplain clays, resulted in the trenches at 41HP118 filling up with water and remaining filled.

Prior to the unfortunate termination of excavation at 41HP118, Unit 1 was excavated to 20 cm (7.9 in) below the top of the buried A horizon, while Unit 2 went to 30 cm. (Due to the difficulty of excavating this heavy clay, Level 3 of Unit 2 consisted of a 50 x 100 cm area only). Only three flakes were recovered from the 20 cm excavated in Unit 1: one from Level 1 and two from Level 2. Unit 2, closer to the estimated center of the site, contained a higher frequency of material: Level 1 contained six complete or broken flakes and 1 marginally modified uniface; Level 2 contained 33 complete or broken flakes and 12 fragments of fire-cracked rock; while Level 3 contained four complete or broken flakes within one-half of the excavated matrix. Two small biface thinning flakes from Unit 2, Level 2 could be fitted back

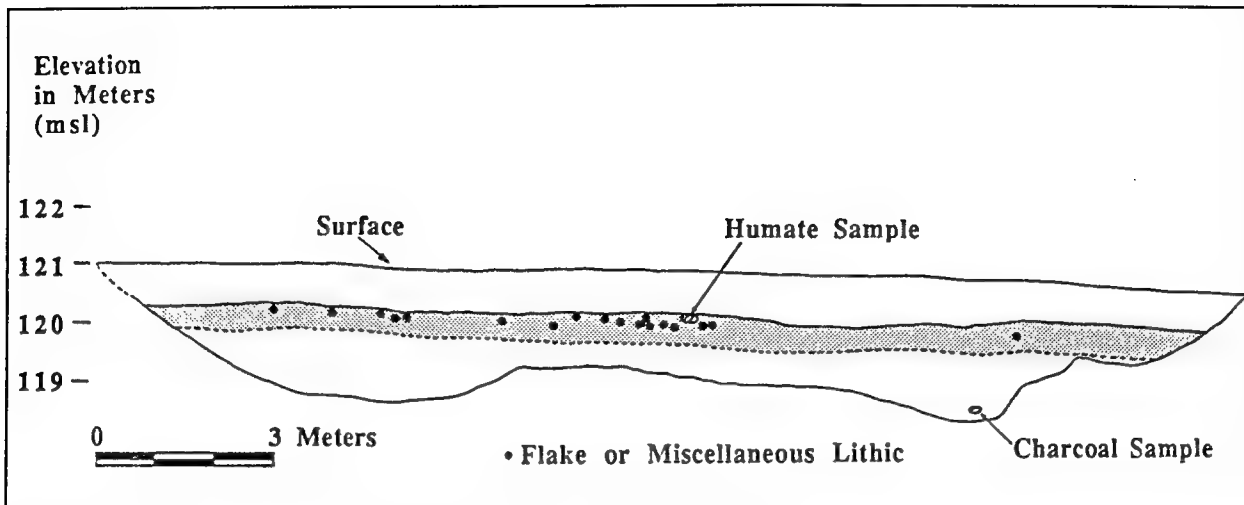


Figure 3-36. Profile of north wall of Trench 5A/5A West at site 41HP118.

together and appeared to have come from the same original piece as an additional six flakes in Level 2 and one flake in Level 1.

The limited hand excavations at site 41HP118 reinforced the impression of low artifact density gained from NTSU's investigations and the backhoe trenches. Unit 2, closest to the estimated center of the site, contained 46 artifacts within 0.25 m³ (equaling 184 artifacts per cubic meter). Unit 1, slightly further away from the presumed center of the site, had a density of only three artifacts per 0.2 m³ (equaling 15 artifacts per cubic meter). Only one tool was recovered from 41HP118, giving the site an estimated tool density of one per 0.45 m³ (or two per cubic meter). In addition to the low density of artifacts and tools, neither unit contained any bone or shell remains, although some flecks of charcoal were recovered from Unit 2, Levels 1, 2, and 3. Likewise, no features were found in either of the two units.

For various reasons, this site was judged to have a low research potential at this time. The low tool and artifact densities, coupled with the lack of features and no bone and shell preservation, indicated that the site would yield a very limited amount of data relevant to the questions put forward in the research design. Additionally, the nature of the site matrix required very slow digging and screening and meant that a large amount of both time and labor would be required to recover anywhere near adequate artifact and tool samples. Considering these facts, site 41HP118 was viewed as having limited research potential and not worthy of further costly investigations; thus no more work was undertaken at the site.

41HP134

This site consists of a sparse scatter of lithic material located in a heavily eroded area. It is located at the base of a western slope extending from a ridge at an elevation of ca. 126.8 m (416 ft) amsl. It is also located ca. 300 m (984.2 ft) northeast of Moore Creek and 350 m (1148.3 ft) north of the road running from Harper's Hill to the Aiguier Cemetery. The site is covered in short grass with dense cedar and locust trees to the east on the upland slope. A stock tank was constructed ca. 125 m (410.1 ft) to the north and the site area shows heavy gullying as a result of channel erosion. The soils of the site area are mapped as the Nahatche series (Lane 1977), deep but nearly level loamy soils varying from clay loam to silty clay loam to loam. Soil observations made on site indicate a sandier component than the published descriptions. The site will be inundated by the conservation pool of Cooper Lake.

Prehistoric material collected on the surface consists of four pieces of lithic debitage and one Gary point, possibly of novaculite, noted on the western edge of the eroded gully system (Figure 3-37). These items are extremely localized, falling within a five square meter area along the gully. Shovel testing in the uneroded areas to the west revealed no buried material, although some charcoal flecks were ca. 5 m (16.4 ft) west of the artifact concentration.

Unfortunately, not much can be said regarding this site since so little cultural material was found. It seems to be representative of the small lithic scatters recorded by the 1970s surveys at Cooper Lake (Hyatt and Skinner

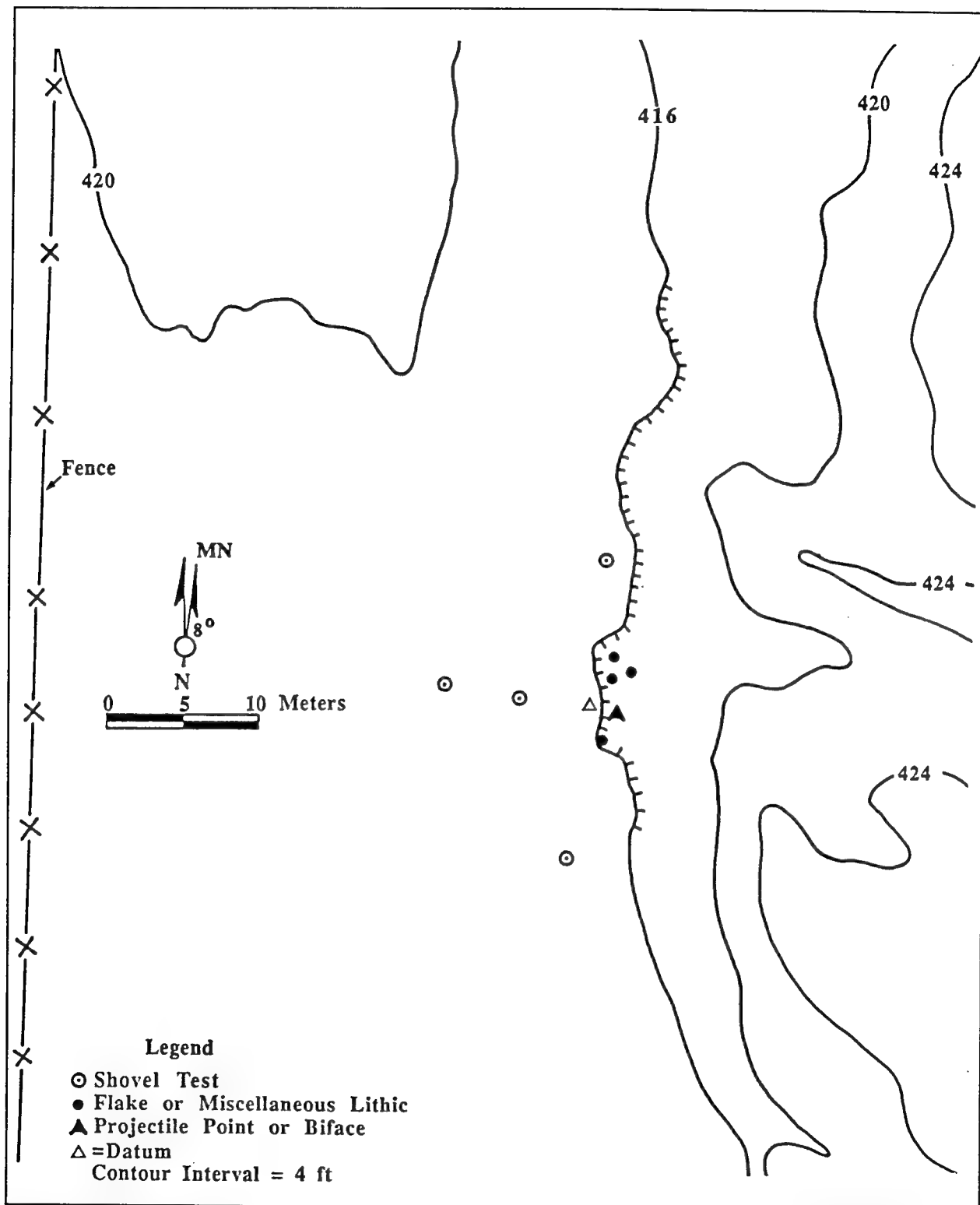


Figure 3-37. Major topographical features, location of surface finds, and placement of shovel tests at site 41HP134. Note: Site limits are undefined.

1971), where only a few flakes were found on the surface. In this connection, several isolated lithic artifacts were noted east of site 41HP134, along the slope and on top of the upland ridge, suggesting light, but consistent, utilization of this area during the prehistoric period.

Due to the low density of the prehistoric artifactual remains, the eroded nature of the finds, and the lack of any preserved deposits in uneroded areas close to the site, no further work on 41HP134 is deemed necessary other than recording it as noted here.

41HP135

This site consists of a moderately dense scatter of both prehistoric and historic material along an eroded farm road on the west side of an upland ridge (see Figure 3-38). The ridge overlooks a small unnamed drainage which flows north-northwest to the South Sulphur River. The top of the ridge (and the eastern end of the site) is about 100 m (32.8 ft) northeast of this small stream. The cultural remains were observed on top of the ridge, at an elevation of ca. 132.6 m (435 ft) amsl, and down the slope to the west to ca. 128.6 m (422 ft) amsl.

The soil association is mapped as Woodtell loam (Lane 1977) which consists of deep, gently to strongly sloping, loamy upland soils. With the exception of the eroded areas, the ground is obscured by dense short grass and scattered cedar and small hardwood trees. The site will be entirely inundated by the Cooper Lake conservation pool.

Prehistoric remains noted on the surface during the survey include a number of flakes and chips of Ogallala quartzite; several flakes of variably colored, fine grained cherts; one biface fragment (possibly a dart blade); and several very eroded, small fragments of ceramics. This material covered an area of ca. 2800 m², running 100 m (328 ft) east-west by 35 m (114.8 ft) north-south. At the eastern end of this scatter was a smaller (10 m [32.8 ft] N-S x 30 m [98.4 ft] E-W) scatter of historic material, including glass, stoneware sherds, and some metal fragments. A series of twelve shovel tests were excavated along the north-south/east-west axes of the site at the time of initial recording, with the majority of the tests concentrated on top of the ridge, where it was believed that the highest likelihood of preserved deposits existed. No artifacts were found in any of these tests, but they did indicate a ca. 10 cm (3.28 in) thick, sandy loam A horizon over clay on top of the ridge.

During the testing program, site 41HP135 was revisited and examined using a series of 50 x 50 cm (19.68 x 19.68 in) units. In all, a total of six such units were excavated in the east central portion of the artifact

scatter in search of preserved deposits on top of the ridge. Only a very few artifacts were recovered from these tests (i.e., four flakes, two prehistoric sherds, two apparent burned clay fragments [possibly poorly preserved sherds], one piece of brown glass, and two historic sherds), and in no case was the A horizon deeper than 12 cm (and usually quite a bit shallower). In addition, three more prehistoric sherds and a Gary point were recovered from the surface of the site during this testing period.

The sherds from the site were plain and lacked evidence of surface treatment. Coarse grog tempered wares account for 83.3% of the assemblage, and probably represent portions of 1 or 2 jars. One of these had small, finely crushed bone added as temper. The surface of the plain small grog tempered sherd had eroded, therefore no further attributes were identifiable.

Unfortunately, the material remains from 41HP135 are too sparse to do much beyond the ascription of approximate dates of occupation. The site was apparently occupied sometime subsequent to the Archaic period, based on the presence of a moderate amount of prehistoric ceramic material. The presence of a Gary point with no evidence of arrow point technology further suggests an Early Ceramic period occupation, but the evidence is equivocal. As an aside, the entire upland ridge area from this site northward to Hurricane Hill (41HP106) shows a number of small Early Ceramic and later occupations, making 41HP135 just one of several. The historic material noted on the surface of 41HP135 was very sparse and could not be related to a specific, documented habitation site. The historic material may be related to some remote activities of occupants from sites 41HP144 and 41HP145, and dates to the latter nineteenth and early twentieth centuries (see Chapter 4).

Due to the eroded nature of much of site 41HP135 and the lack of archaeological deposits showing (1) significant depth, (2) a moderate density of artifactual material, or (3) any degree of faunal or botanical preservation; it was decided to terminate investigations at this site and recommend no further work at this time.

41HP136

This small site was located by shovel testing while on survey. It is situated in a wooded area on the southern slope of Hurricane Hill, ca. 300 m (984.2 ft) southeast of the main prehistoric occupation area of site 41HP106. The site is situated on a small ridge projecting southwest from Hurricane Hill with shallow gullies to the northwest and southeast. The site is between ca. 125.6-127.7 m (412-418 ft) amsl in elevation, and is ca. 80 m (262.5 ft) northeast of a small, unnamed creek, flowing northwest

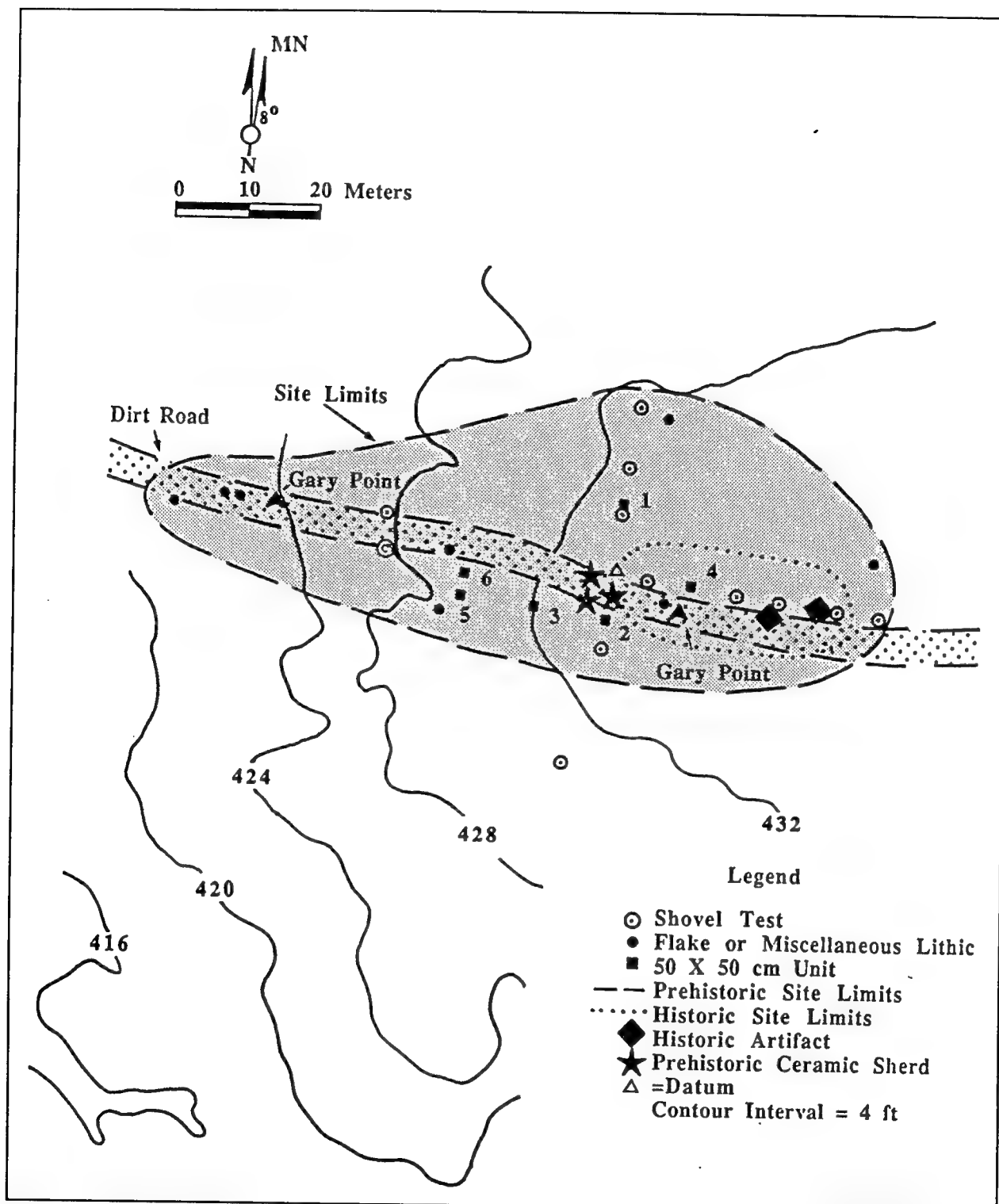


Figure 3-38. Major topographical features, location of surface finds, and placement of test units at site 41HP135.

into the South Sulphur River around the base of Hurricane Hill. The soil association for 41HP136 was reported as Woodtell loam (Lane 1977). These are gently

to strongly sloping, deep upland soils, typically with about 23 cm (58.4 in) of loam overlying a mottled clay subsoil. The site is covered with several large oak trees

and numerous smaller trees with a dense leaf litter on the ground.

As noted above, this site was found by shovel testing during the 1987 survey. At the time of recording, an additional ten shovel tests were placed around the original one in an attempt to better define the spatial limits of the site. A total of five pieces of lithic debitage were recovered from four separate shovel tests, with a possible fragment of fire-cracked rock from a fifth. Based on this information, the main portion of the site was estimated to be ca. 150 m² (13 m [42.6 ft] north-south x 12 m [39.4 ft] east-west). These tests also showed the site to contain a maximum depth of about 25-30 cm (9.8-11.8 in) of cultural deposits over a clay zone.

Subsequent test excavations were conducted in three stages. Initially, six 50 x 50 cm (19.68 x 19.68 in) units (Units 1-6) were placed within the main site area as it had been defined by the shovel testing. Later, 16 additional 50 x 50 cm (19.68 x 19.68 in) units were put in on a 5 m (16.4 ft) interval grid to establish site limits in a more systematic manner (Figure 3-39). The fill from each 50 x 50 cm (19.68 x 19.68 in) unit was excavated as a single vertical level and was screened through 6.4 mm (0.25 in) mesh hardware cloth. Five 1 x 1 m (3.28 x 3.28 ft) units were excavated in the area of highest artifact density in order to acquire a larger sample and investigate the vertical distribution of artifacts. These five units were dug in 10 cm levels and all fill was passed through 6.4 mm (0.25 in) screens.

On the basis of the six initial 50 x 50 cm (19.68 x 19.68 in) units, the site was thought to represent a small, possibly single component occupation dating to the Early Ceramic period (ca. 200 B.C. - A.D. 800). This is based on the recovery of Kent and Gary dart points (Units 4 and 6) along with a Scallorn arrow point (Unit 3), as well as several ceramic sherds (Units 3, 4, and 5). Although this combination of diagnostic artifacts could be the result of multiple occupations over a much longer time span, this alternative explanation is thought to be less likely. The low overall density of artifacts and the relatively small area within which they concentrate is interpreted as more indicative of a single component rather than two separate occupations.

The additional test units provided a better delineation of the site's horizontal limits and a larger artifact sample. Subsurface artifacts extend over an area measuring at least 30 m (98.4 ft) north-south by about 15 m (49.2 ft) east-west. Over much of the area, however, artifact density is very low (Table 3-22). The densest concentration of artifacts is just south of the site datum. Within this area, three of the 1 x 1 m (3.28 x 3.28 ft) units (e.g., Units 7, 8, and 9) were located.

Unmodified lithic debitage is the most common class of artifact recovered from this site, totaling 253 pieces. Fragments of fire-cracked rock are nearly as common, with 174 pieces. In addition to the Gary, Kent, and Scallorn projectile point specimens from the initial excavations, four more dart points and three dart point blade fragments were recovered from the 1 x 1 m (3.28 x 3.28 ft) units. Two complete Gary dart points come from Unit 7, one each from Levels 2 and 3. The first 10 cm (3.9 in) level of Unit 20 yielded a Gary point along with an untyped dart point from which much of the stem was missing.

The eight other bifacial tools include four fragmentary specimens that are too small to allow further classification. The four other specimens are classed as aborted bifaces and appear to be discarded at various stages during the biface production process. Both early and late stages are represented by two specimens each. The eight unifacial tools are all simply pieces of lithic debris that exhibited a series of contiguous retouch flake scars along one or more lateral edge. All eight are classified as marginally modified unifaces. The three specimens classified as cores are blocky fragments that appear to have broken off during the reduction of quartzite nodules. All exhibit areas of nodular cortex and the scars of previously removed flakes.

Forty ceramic sherds, including three rims and 37 body sherds, were recovered from 41DT136. Three different ceramic wares were identified: grit tempered (5.1%), grog tempered (46.2%), and small grog tempered (48.7%). The grit tempered sherds include two plain bodies from bowls (6.7-7.2 mm thick) with no interior or exterior surface modification.

The grog tempered pottery wares include a minimum of two bowls and a jar. The jar is represented by a diagonal incised rim which is direct and standing with a flat lip. The exterior surface is intentionally thickened. The other diagonally incised rim is also standing and direct, but the lip is rounded. The grog tempered pottery from 41HP136 is relatively thin (6.4 ± 0.7 mm) compared to other ceramic bearing sites at Cooper Lake. Also, none of these sherds is smoothed, scraped, or burnished. A small percentage of the grog tempered wares (16.7%) have had crushed bone and grit added to the paste.

The small grog tempered wares appear to be represented by a minimum of three different vessels, primarily bowls or carinated bowls. A single direct, straight rim to a bowl with a rounded lip was recovered. Three decorated body sherds were also recovered. The first is a cross-hatched incised piece, probably from a carinated bowl. It resembles the Canton Incised type. A zoned engraved body sherd was also found. The sherd is

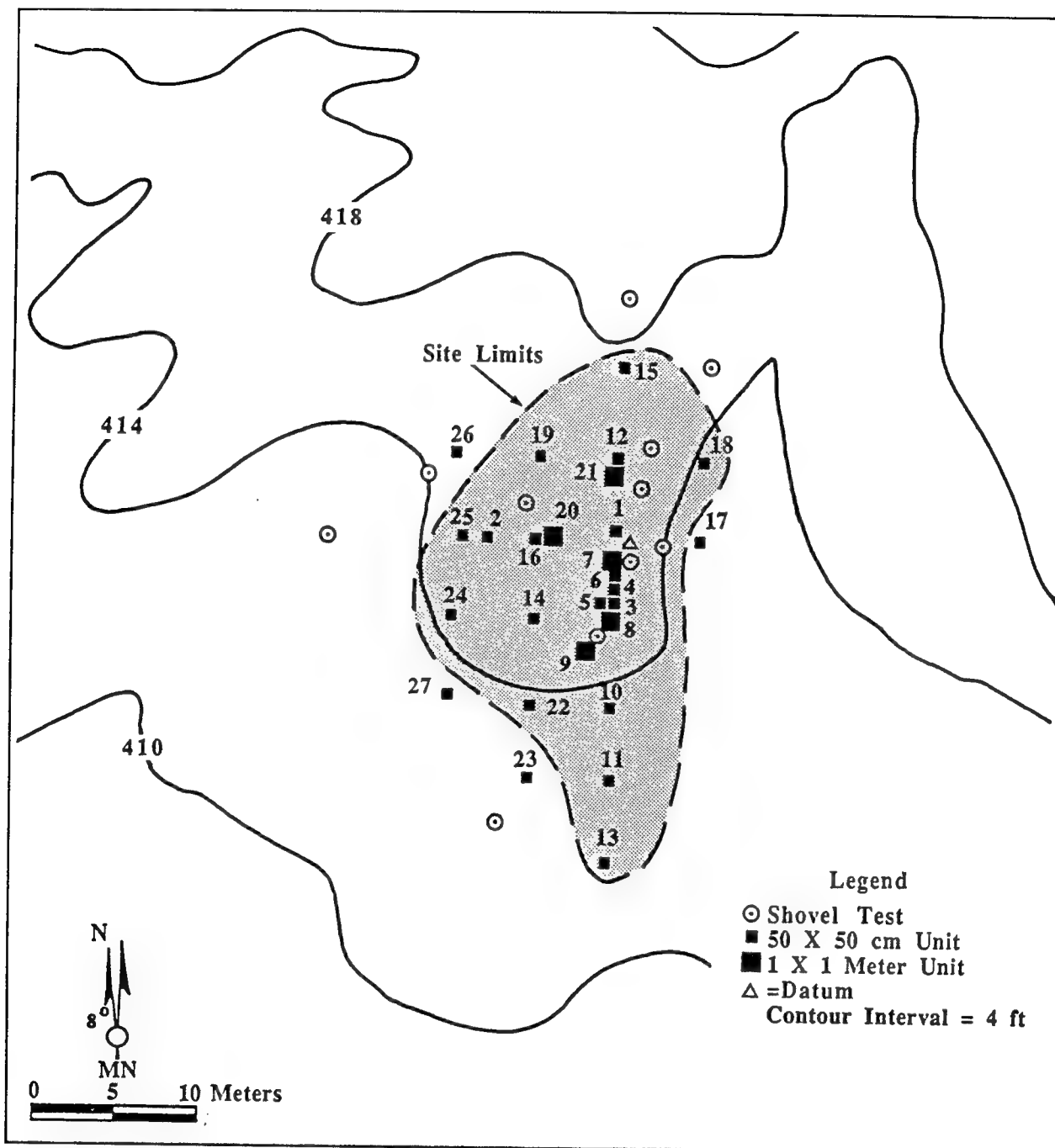


Figure 3-39. Major topographical features and location of excavation units at site 41HP136.

small and the motif includes a curvilinear zone filled with closely spaced engraved lines. A lightly incised broad-lined design was noted on a third sherd, but the vessel form could not be determined. The small grog tempered pottery averages 6.4 ± 0.8 mm in thickness, with a range of 4.6-7.9 mm. Three are burnished on the exterior surface, and one sherd has finely crushed hematite added

to the paste. For the most part, however, the paste of the small grog tempered wares are homogeneous.

Because of the recovery of a large number of dart projectile points from the site, it is possible that the ceramic materials relate to the Early Ceramic period. This would be of some significance since little information is currently available about the stylistic, functional, and

TABLE 3-22

Summary Of Artifacts By Class From Site 41HP136

Unit	Level	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Ceramics	Burned Rock
1	1	—	1	—	9	—	—	2
2	1	—	—	—	3	—	—	1
3	1	1	—	1	16	—	4	6
4	1	1	1	—	16	—	2	10
5	1	—	—	—	10	—	2	3
6	1	1	—	—	20	—	—	8
7	1	—	2	—	12	1	1	4
	2	1	1	—	14	—	2	24
	3	1	—	2	18	—	1	12
	4	—	—	—	6	—	—	11
8	1	—	—	1	15	—	1	5
	2	—	1	1	14	—	11	20
	3	—	—	—	14	1	5	18
9	1	—	1	—	18	—	2	11
	2	—	—	—	8	1	4	6
	3	—	—	1	7	—	—	12
10	1	—	—	—	1	—	—	—
11	1	—	—	—	—	—	—	1
12	1	—	—	—	3	—	3	2
13	1	—	—	—	1	—	1	4
14	1	—	—	1	4	—	—	3
15	1	—	—	—	1	—	—	—
16	1	2	—	—	7	—	—	2
18	1	—	—	—	1	—	—	—
19	1	—	—	—	3	—	—	2
20	1	2	—	—	5	—	1	2
	2	—	—	1	7	—	—	3
21	1	—	—	—	11	—	—	2
	2	—	—	—	5	—	—	—
22	1	—	—	—	1	—	—	—
24	1	—	—	—	1	—	—	—
25	1	—	—	—	2	—	—	—
Total		9	7	8	253	3	40	174

technological character of an Early Ceramic period assemblage. However, based on the examination of the sherds, it is suspected that these materials are more likely to relate to an Early or Middle Caddoan occupation

possibly contemporaneous with the hamlet 300 m (984.2 ft) to the northwest at Hurricane Hill (see Perttula 1988).

In terms of vertical provenience, artifacts were found to be distributed rather evenly throughout the 25-30 cm

(9.8-11.8 in) of sandy loam A horizon, while the underlying clay B horizon was essentially sterile of cultural materials. Gary dart points and ceramic sherds were the only temporally diagnostic artifacts with vertical provenience information. Examples of Gary points and ceramics were recovered from each of the first three 10 (3.9 in) cm levels. The incised sherds were confined to Levels 2 and 3. It is likely that these sherds may relate to a later component than do the dart points. If this is the case, then the remains of these components are mixed vertically within the sandy loam site deposit.

No further work is recommended for 41HP136 beyond that described above. This site is one of three possibly single component, Early Ceramic period sites that were the subject of expanded test excavations. One of these sites (41HP137) was chosen for additional excavations, while 41HP136 was not. The primary reason for this choice is that datable materials in the form of carbonized nutshell and charcoal were known to be preserved at 41HP137. Significant amounts of these materials were not recovered during the excavations at 41HP136.

41HP138

This site is located on a small knoll south of an unnamed, intermittent drainage that runs along the southwest side of Hurricane Hill. It is ca. 50 m (164 ft) east of a dirt road that runs south from Hurricane Hill and ca. 750 m (2460.6 ft) southeast of the main prehistoric occupation area at site 41HP106. Site 41HP138 is ca. 110 m (360.9 ft) southwest of the unnamed drainage, the same one on which sites 41HP136 and 41HP137 are located. The site is covered with heavy grass on top of the knoll, while the slope on the northern edge of the site is covered with a dense thicket of small trees. A few large scattered oaks and other hardwoods are located at the southern edge of the site. The top of the knoll is at an elevation of ca. 133 m (436 ft), and the site stretches downslope to the north to ca. 131.7 m (432 ft). As with sites 41HP136 and HP137, the soil association is Woodtell loam (Lane 1977).

Surface visibility on site 41HP138 is very poor and the site was originally found during shovel testing on the 1987 survey. A series of 13 shovel tests was used to gain an estimate of site area and depth during the initial recording. Five of these shovel tests were found to contain prehistoric material, ranging from one to four flakes per shovel test. Based on this work, the site was initially estimated to be ca. 580 m² (1902.8 ft²) in area, with prehistoric artifacts distributed throughout the upper 20 cm (7.9 in) of loam overlying the clay.

Additional test excavations were conducted in three different stages. The first stage involved the excavation of seven 50 x 50 cm (19.68 x 19.68 in) units within the main site area as it had been delimited through shovel testing, in order to better define the spatial variation in artifacts.

Later, the site area was more systematically sampled with a total of 18 additional 50 x 50 cm (19.68 x 19.68 in) units put in on a 10 m (32.8 ft) grid. This provided further confirmation of initial impressions about the intrasite distribution of artifacts and a better definition of the site's horizontal limits (Figure 3-40). The fill from each of the 50 x 50 cm (19.68 x 19.68 in) units was excavated by hand and was screened through 6.4 mm (0.25 in) mesh hardware cloth.

Although subsurface artifacts were found over an area measuring at least 45 x 25 m (147.6 x 82 ft), they were very sparse over much of this area (Table 3-23). A much denser concentration of artifacts was confined to a considerably smaller area around the site datum. Four 1 x 1 m (3.28 x 3.28 ft) units were excavated there to collect a larger artifact sample and to investigate their vertical distribution. The fill from these units was removed in 10 cm levels and was sifted through 6.4 mm (0.25 in) screens.

The sandy loam A horizon was between 15-20 cm (5.9-7.9 in) thick in these units and the vast majority of artifacts were confined to the upper 10 cm (3.9 in). The relative shallowness of this artifact bearing zone suggests that it has suffered a significant amount of erosion, probably the result of modern farming practices.

Because a major portion of the assemblage was confined to the first 10 cm (3.9 in), examination of the vertical proveniences of temporally diagnostic artifacts was not very informative. Although no ceramics were recovered from the site, both Scallorn arrow points (3 specimens) and Gary dart points (7 specimens) were represented. One Gary specimen was from a 50 x 50 cm (19.68 x 19.68 in) unit (Unit 1) and therefore lacks specific vertical provenience. Five Gary points were from the first 10 cm (3.9 in) level of three different 1 x 1 m (3.28 x 3.28 ft) units (Units 8, 10, and 11), and one Gary point was recovered from the 10-20 cm (3.9-7.9 in) level of Unit 11. All three Scallorn points were confined to the upper 10 cm (3.9 in), two from Unit 9 and one from Unit 10. If more than one temporal component was represented at 41HP138, it is well mixed within the shallow, sandy loam soil zone.

Debris resulting from lithic tool production makes up the major part of the artifact assemblage, including 1,153 pieces of lithic debitage and 10 cores or core fragments. The bifacial tools, apart from the projectile points, are primarily fragments. Seven of these appear to be

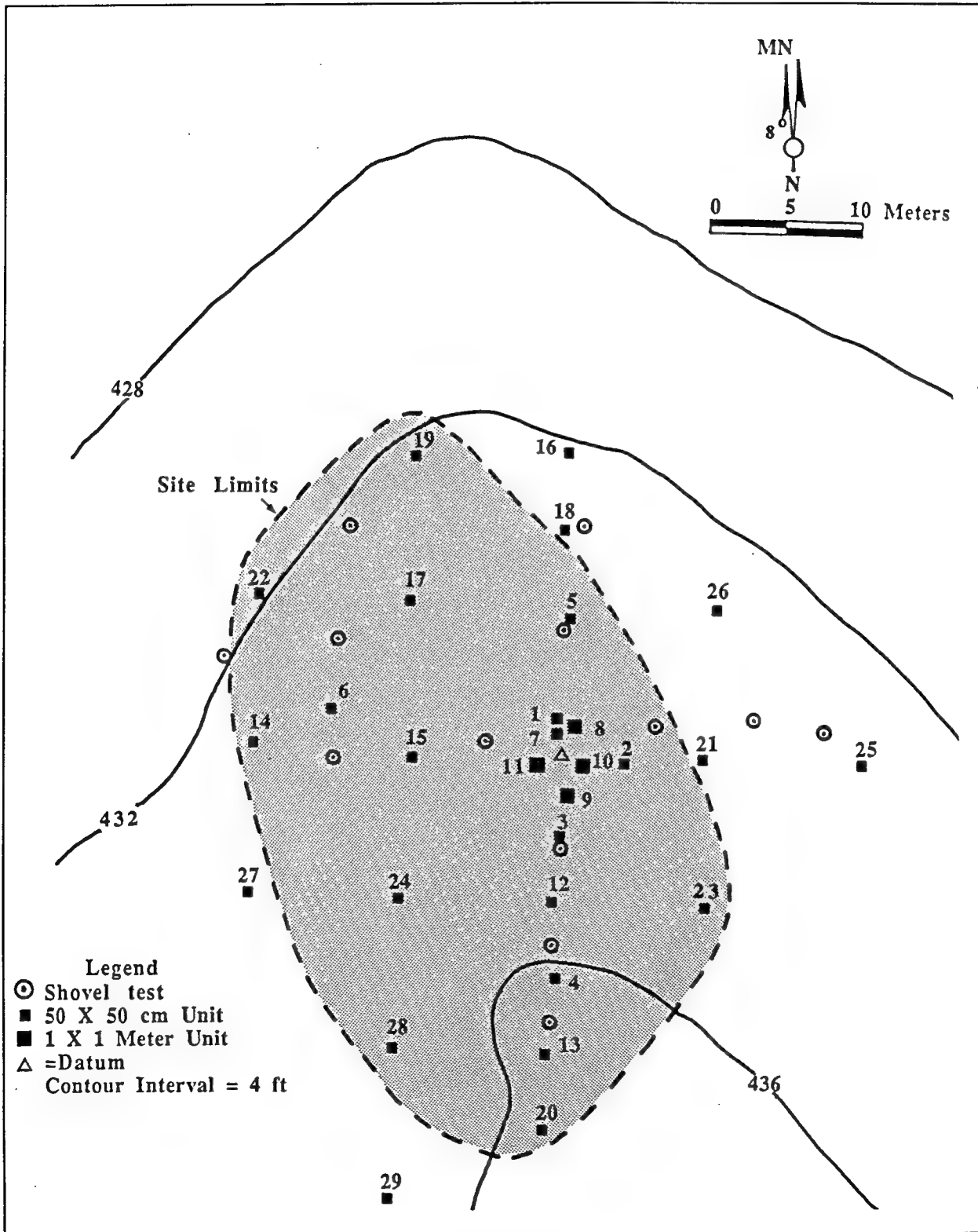


Figure 3-40. Major topographical features and location of excavation units at site 41HP138.

TABLE 3-23

Summary Of Artifacts By Class From Site 41HP138

Unit	Level	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Ground & Battered Stone	Burned Rock
1	1	2	—	2	78	—	—	7
2	1	—	—	—	8	—	—	1
3	1	—	—	—	20	—	—	—
4	1	—	—	—	13	—	—	—
5	1	—	—	1	27	—	—	—
6	1	1	—	—	12	—	—	—
7	1	—	—	—	78	—	—	12
8	1	4	2	5	257	3	—	49
	2	—	—	—	17	1	—	11
9	1	3	1	2	127	2	1	7
	2	—	—	—	9	—	—	—
10	1	2	2	3	172	3	—	44
	2	1	—	1	14	—	—	3
11	1	1	3	6	150	1	—	19
	2	1	1	2	34	1	—	15
12	1	—	—	1	37	—	—	3
13	1	—	—	—	12	—	—	—
14	1	—	—	—	5	—	—	1
15	1	—	—	—	13	—	—	1
17	1	—	—	—	28	—	—	—
19	1	—	—	—	10	—	—	4
20	1	—	—	—	5	—	—	—
22	1	—	—	—	1	—	—	—
23	1	—	—	—	4	—	—	—
24	1	—	—	—	13	—	—	—
28	1	—	—	—	9	—	—	—
Total		15	9	23	1153	11	1	177

fragments of projectile point blades. Five of the bifaces are essentially complete, but appear to be aborted bifaces that were rejected late in the manufacturing process. The 23 unifacial tools are all marginally modified pieces of lithic debitage that exhibit rows of small retouch flake scars along one or more lateral edge. The only additional stone tool is a single hammerstone from the first 10 cm (3.9 in) level of Unit 9.

Fragments of fire-cracked rock are relatively common and also tended to be concentrated in the units located near the site datum. These are heat shattered pieces of coarse grained quartzite and, occasionally, sandstone. Disappointingly, none of the test units contained any faunal remains. It appears that soil conditions at the site created a poor preservation

environment for this important source of subsistence information.

Site 41HP138 is one of three sites originally believed to represent single component Early Ceramic period sites, at which expanded test excavations were conducted. Even though site 41HP138 will be impacted by the construction of Cooper Lake, due to the shallowness of the site deposit and the lack of subsistence remains and datable materials, no further work is recommended.

41HP139

This site consists of a moderate scatter of both prehistoric and historic material located on the western slope of a small ridge ca. 600 m (1968.5 ft) southeast of Hurricane Hill (41HP106). Artifactual material is exposed in an eroded farm road running north-south along the western edge of a rectangular wooded lot (Figure 3-41). Artifacts were observed along the length of this road for ca. 80 m (24.4 ft) north-south, but very little was noted beyond its limits. This resulted in a linear artifactual distribution covering ca. 1100 m² (32.8 ft²). The majority of the material was confined to the highest point of the ridge, at ca. 132.5 m (428 ft) amsl, but some material was scattered downslope reaching to ca. 129 m (423 ft) amsl. The historic material was confined to a smaller area at the northern end of the total artifact scatter and covered an area of ca. 320 m² (40 m [131.2 ft] north-south x 8 m [26.2 ft] east-west). Site 41HP139 is located about 100 m (328 ft) northeast of a small unnamed creek which flows northwest to the South Sulphur River around the base of Hurricane Hill. The soil association is Woodtell loam consisting of deep, gently to strongly sloping (in this case only 2-5%), loamy upland soils (Lane 1977). The area of the site and its immediate surroundings is in short grass with a patch of large hardwoods about 20 m (65.6 ft) to the east. The site will be completely inundated by the conservation pool of Cooper Lake.

Cultural material noted on the surface of this site includes twelve flakes and one core, plus ca. seven historic artifacts (stoneware pottery and glass). Nine shovel tests were placed around the surface scatter, especially concentrating on the top of the ridge and to the east and west of the eroded road. These tests showed about 30 cm (11.8 in) of loam over clay upslope to the east but no artifactual material. To the west and south, the loam was shallower, varying from 10-20 cm (3.9-7.9 in) deep, with only one shovel test revealing any subsurface material: a single flake in 10 cm (3.9 in) of loam, ca. 10 m (32.8 ft) west of the road on top of the ridge.

The sparseness of the cultural remains from 41HP139 makes it difficult to reach any meaningful conclusion in

regard to their significance or date. The prehistoric material from the site contained no diagnostic material, but the combined circumstances of its size and location suggest that it may best be regarded as part of a series of small prehistoric sites concentrated in the area south of Hurricane Hill (41HP106) and apparently dating to the Early Ceramic period or later. The historic material is likewise very sparse, but may be circumstantially related to a series of historic occupations to the north and west and dated to the period from 1880-1930 (Perttula 1988). 41HP139 contained no trace of any structural remains or any evidence that the area was ever a domestic site, and it was not shown as being occupied on the 1964 USGS map, nor on any earlier maps yet examined.

Due to the relatively low density of the cultural remains, the eroded nature of the finds, and the lack of artifacts in all but one of the shovel tests in the uneroded areas of the site, 41HP139 was deemed to have a low research potential. As a result no further work on 41HP139 is deemed necessary subsequent to the recording and shovel testing involved in its initial discovery and evaluation.

41HP140

This is a partially eroded multicomponent site located at the bend of an old unimproved county road, about 1.25 km (0.8 mi) west of Highway 19/154 and about 1.1 km (0.7 mi) east of Hurricane Hill. The site consists of some subsurface material on the edge of a ridge plus a light surface scatter of material across the road and downslope to the southwest (Figure 3-42). The highest portion of the site is at ca. 139.7 m (458 ft) amsl, while the eroded material stretched downslope to ca. 135.8 m (445 ft). The main portion of the site lies ca. 175 m (574 ft) northeast of a small intermittent, unnamed drainage flowing northwest to the South Sulphur River. The uneroded portion of the site is covered in grass, with hardwood trees along the fence lines to the west and south. South of the road, surface material is located on an old eroded farm road and in a cedar thicket. The site is mapped as Woodtell loam (Lane 1977), but shovel testing showed the area to be far sandier than other areas described as Woodtell loam to the south of Hurricane Hill. The site will be within the limits of the project lands east of the dam spillway but will not be inundated by the Cooper Lake.

The site was initially located by a shovel test on top of the ridge, and it was only during site recording that the eroded material was found to the south and southwest. Nine more shovel tests were excavated across the site area, but only one contained any subsurface material.

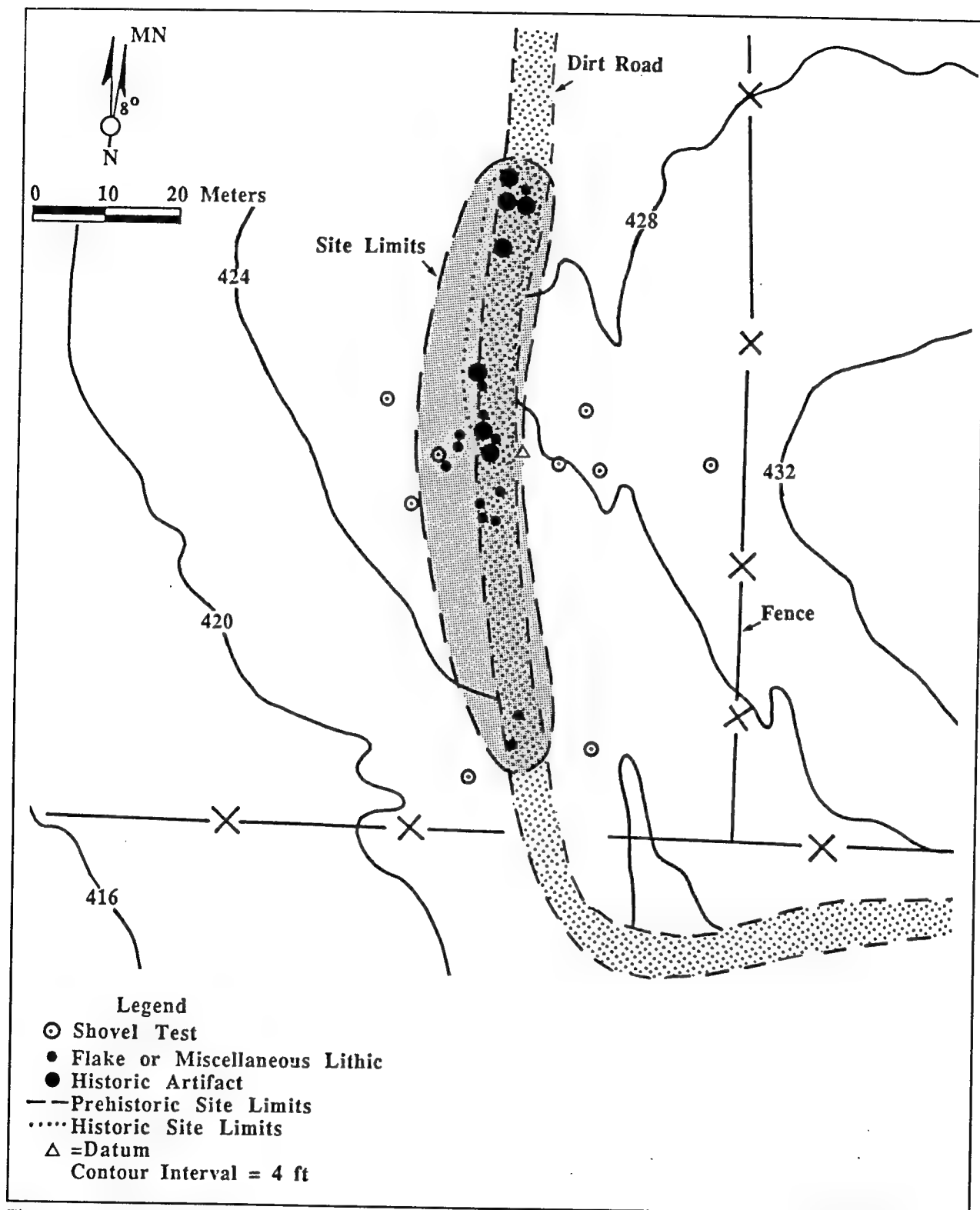


Figure 3-41. Major topographic features, location of surface finds, and placement of test units at site 41HP139.

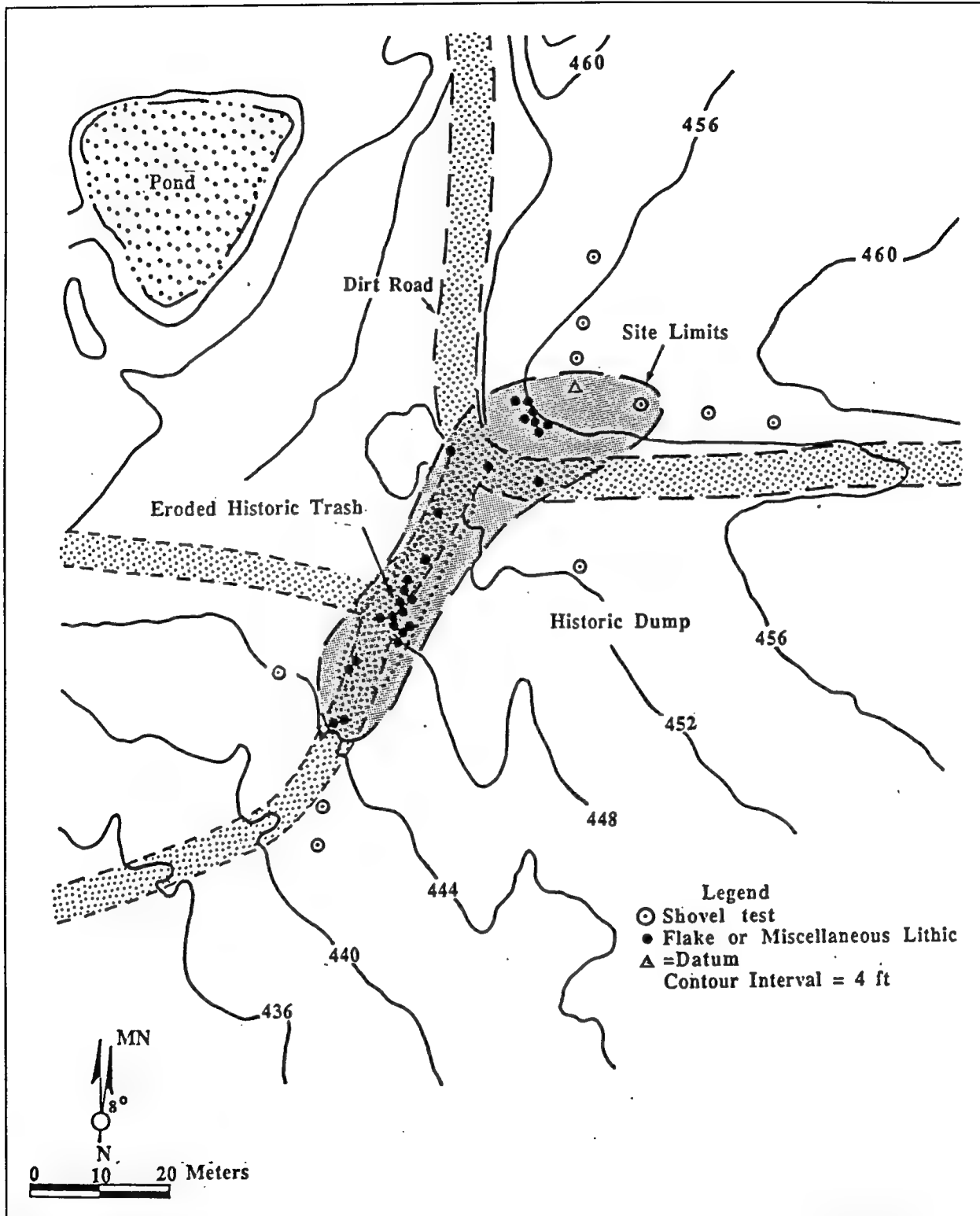


Figure 3-42. Major topographical features, location of surface finds, and placement of test units at site 41HP140.

Based on the surface distribution of cultural material and the location of subsurface remains, the site was estimated to be about 1500 square meters in area (70 m [229.6 ft] NE-SW x 15 m [49.2 ft] NW-SE) with about 20 cm (7.9 in) of artifact bearing deposit in the northeastern portion of the site. Observed cultural material includes a quantity of lithic debitage on the surface of the road and a dump of recent historic materials scattered in the road and in the southeast portion of the site. This recent material includes twentieth century crockery, bottles (i.e., liquor and soda pop), metal cans, jars, and plastic containers.

Since the majority of shovel tests at the site failed to reveal the presence of any subsurface material, artifact densities were assumed to be relatively low. This fact, together with the disturbed nature of the bulk of the prehistoric remains indicated a low research potential in regard to the prehistoric occupation. The historic materials appeared to be quite recent, with some or all of them being the result of recent dumping. For these reasons, no further investigations are recommended subsequent to this initial recording.

41HP147

This site consists of a high density scatter of prehistoric lithic and ceramic material along an eroded farm road and slope on the west side of an upland ridge (Figure 3-43). The site area is immediately northwest of site 41HP145, about 750 m (2460.6 ft) south of Hurricane Hill, and between 100-200 m (328-656.2 ft) west of an old county road running south from Hurricane Hill. The site is situated equidistant from two small, unnamed intermittent creeks which run approximately northwest to meet the South Sulphur River. Each of these two creeks is ca. 300 m (984.2 ft) from the site (one to the southwest and the other to the northeast). Site 41HP147 is located above the south floodplain of the South Sulphur River on a slope ranging in elevation from ca. 126.8-132.3 m (416-434 ft) amsl. The soil association of the site is Woodtell loam (Lane 1977) and except for the eroded farm road, the site area is covered with short grass and scattered short trees, including locust and oak. The site will be completely inundated by the conservation pool of Cooper Lake.

Prehistoric remains noted on the eroded road include a number of fragments of lithic debitage (a minimum of thirteen were noted), five points or point fragments (three of which were of the Gary-type), two sherds, one hammerstone, one core fragment, and one grinding stone. Two areas of concentration were noted: one dense area at the south end of the site near the top of the slope, and a second, less dense area at the base of the slope. Two

shovel tests at the southern (upslope) end of the site produced two flakes and one point fragment, while four shovel tests at the northern (downslope) end produced only two flakes. The total area of the site is estimated as covering around 3000 m², ca. 150 m (492 ft) northwest-southeast x 20 m (65.6 ft) northeast-southwest, with a depth varying from 10-20 cm (3.9-7.9 in). The three Gary points and the ceramics were recovered from the southern portion of the site, while the northern portion contained the grinding stone and a point tip possibly originating from a larger dart point. This suggests the real possibility of two components: an Early Ceramic or Early Caddoan component at the top of the slope, and an earlier preceramic or Archaic component at the base of the slope.

The eroded nature of much of the material, together with the shallowness and low artifact density of the uneroded deposits indicates a low research potential for the site as a whole. As a result, no further investigations are recommended at 41HP147, subsequent to its initial location and recording.

41HP148

Site 41HP148 was recorded as a light scatter of artifacts within the channel of the South Sulphur River. The river flows north-northwest at this location, and the artifacts were found lying on an erosional bench along the east side of the channel. The bench and the adjacent river bank are composed of Holocene alluvial clays. Outside of the channel, the floodplain was densely wooded while a discontinuous ground cover of sparse grasses was the only vegetation along the banks of the channel.

A total of 15 lithic artifacts was recorded on the surface within an area measuring about 12 x 5 m (Figure 3-44). These consisted of lithic debitage, fire-cracked rock, one biface, and one tested cobble. All were between 2-2.5 m (6.6-8.2 ft) below the top of the riverbank, but were out of primary context. In places where it was not obscured by slumping, the stratigraphic profile is similar to that exposed at many other places along the South Sulphur River channel. An upper brown clay zone less than 1 m (3.28 ft) thick was underlain by ca. 1 m of very dark gray clay. Below this was a lighter colored gray clay that formed the erosional benches upon which the artifacts were found. The original context of these artifacts could be close to their present position or anywhere above this in the stratigraphic profile.

Site 41HP148 was located downstream from the proposed dam and will not be inundated by reservoir construction. It could, however, be impacted by borrow pit construction. The small number of surface artifacts recovered indicates that artifact density overall is very

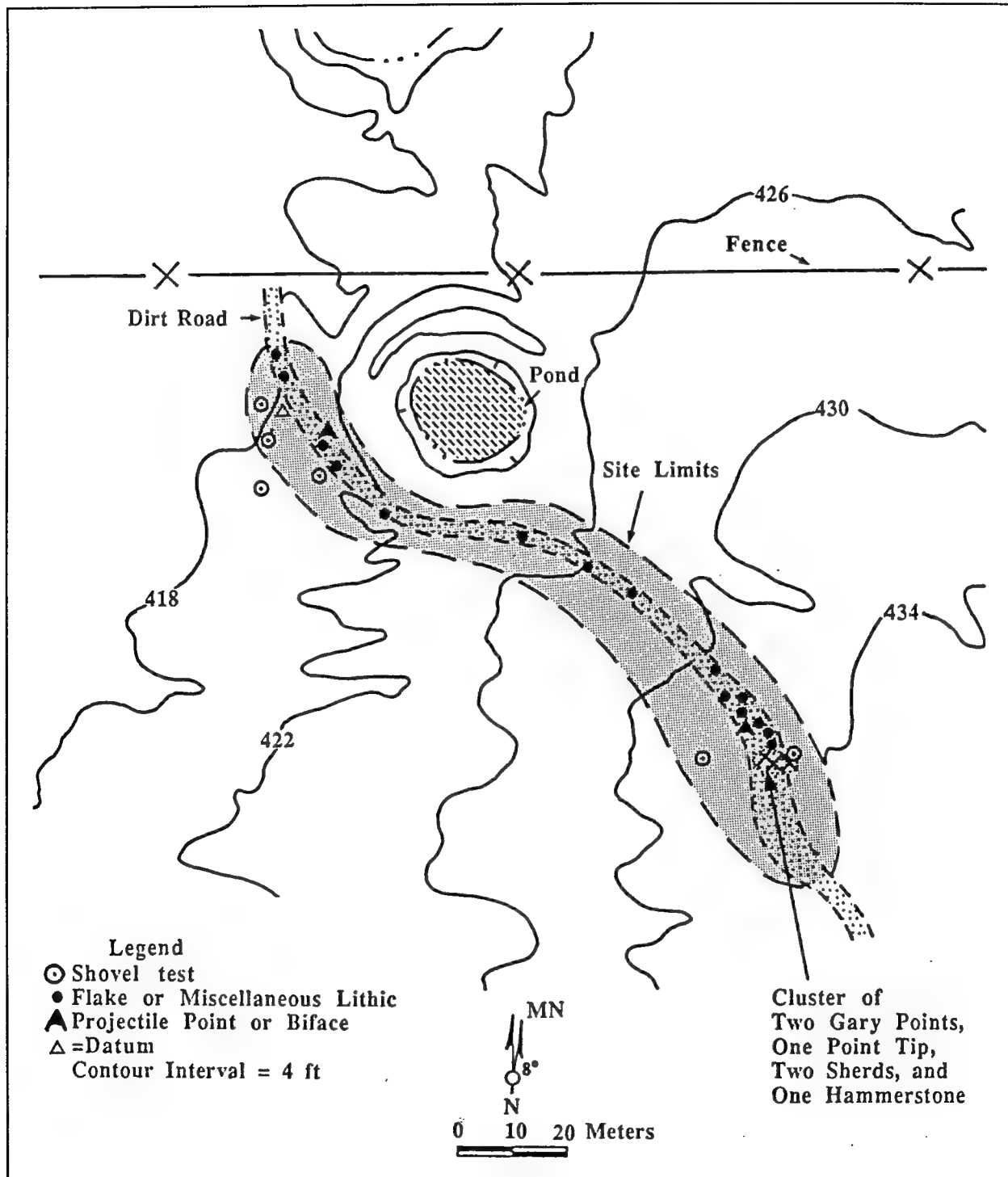


Figure 3-43. Major topographical features, location of surface finds, and placement of test units at site 41HP147.

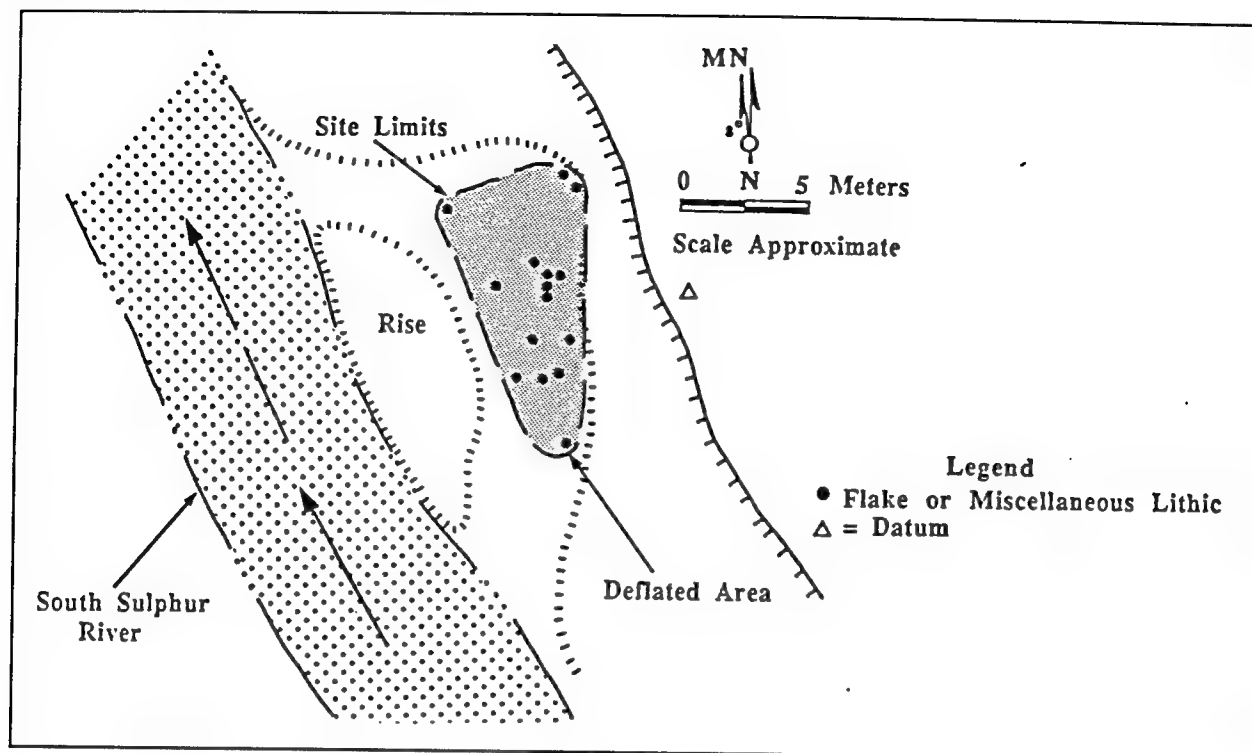


Figure 3-44. Major topographical features and location of surface finds at site 41HP148.

low. Despite a careful examination of the channel wall, no *in situ* materials could be documented. This lack of demonstrable subsurface archaeological deposits is the principal reason why no further work is recommended at 41HP148.

41HP149

Site 41HP149 was discovered within the present channel of the South Sulphur River about 70 m (229.6 ft) downstream from the bridge at Harper's Crossing. The floodplain surface outside the channel cut is densely forested, but much of the channel itself is free of vegetation. The floodplain surface at this location has an elevation of ca. 123.7 m (406 ft) amsl.

A low density scatter of surface artifacts was observed along a series of erosional benches within the channel. These materials are exposed sporadically over ca. 90 m (295.3 ft), and they included lithic debitage, fire-cracked rock, three cores, and a single biface. Although no artifacts were unquestionably *in situ*, they appear to have originated from the alluvial clay sediments that form the south bank of the river channel at this location. As is the case along much of the South Sulphur River channel, extensive slumping of sediments along the banks has obscured the stratigraphic profile. Although all surface

artifacts occurred between 3-4.5 m (9.8-14.8 ft) below the top of the river bank, there was no clear indication as to their original contexts.

The relative accessibility of this site allowed the use of a backhoe to excavate a stratigraphic trench approximately 5 m (16.4 ft) downstream from the site datum (Figure 3-45). It was excavated to a depth of 2.7 m (8.8 ft) below the floodplain surface, and was extended about 7 m (22.9 ft) back into the bank. The stratigraphic profile shows an upper zone of brown-gray clay that is 1.5 m (4.9 ft) in thickness. This is separated from the underlying very dark gray clay zone by a 40 cm (15.7 in) thick transitional zone of gray clay. The very dark gray clay extends from 1.9 m (6.2 ft) to the bottom of the backhoe trench. Although a lighter colored gray clay is exposed deeper within the channel, the backhoe could not reach deep enough to section it. Inspection of the backhoe trench walls, as well as of the cut bank at this site failed to show any evidence of *in situ* artifacts or features that could confirm the presence of former occupation surfaces within these alluvial sediments.

Site 41HP149 may be destroyed by borrow pit construction and will be inundated by the conservation pool of Cooper Lake. Efforts to document *in situ* deposits of artifacts were not successful at this site and it is for this reason that no further work is recommended.

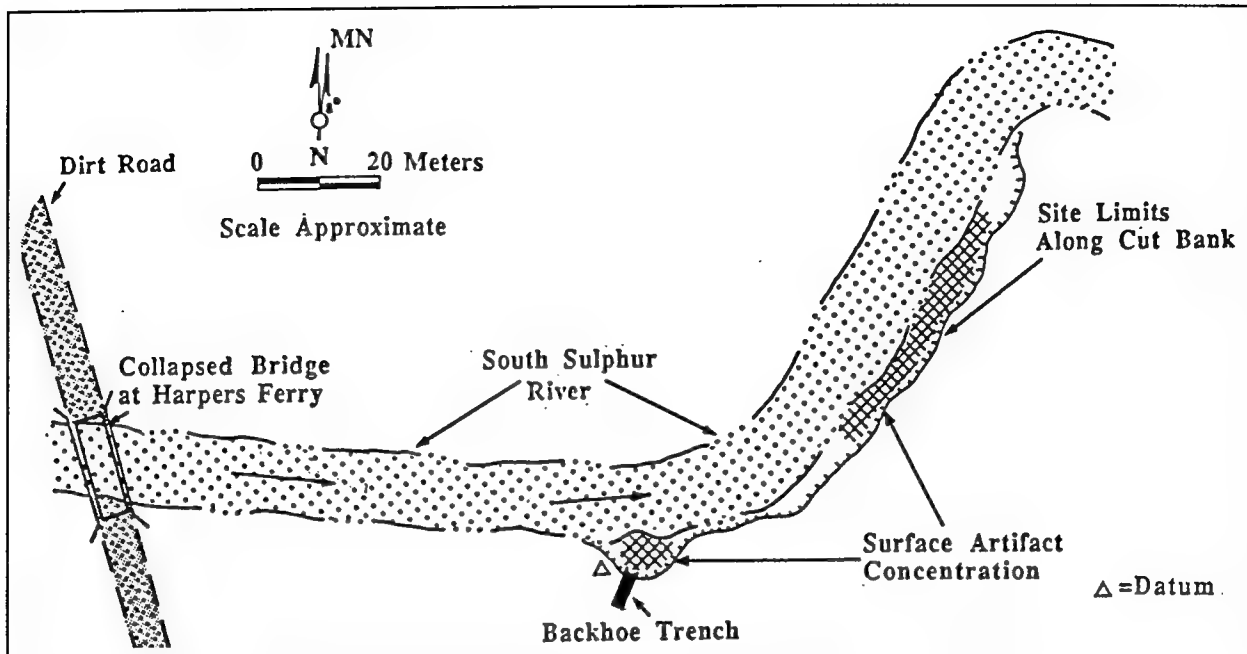


Figure 3-45. Major topographical features and location of artifact concentrations at site 41HP149.

41HP150

Site 41HP150 (Figure 3-46) was identified during SMU's river channel survey as a scatter of lithic debitage and fire-cracked rock along erosional benches within the channel and atop the east bank of the South Sulphur River. Artifacts were observed over a total distance of about 40 m (131.2 ft). At this location the surface of the floodplain has an elevation of ca. 123 m (404 ft) amsl. Although the river floodplain in this area is mapped as Kaufman clay, the uppermost site sediments are noticeably sandy. They are, in fact, similar to the sediments associated with a series of elevated knolls located on the opposite side of the river. While the site area was not perceptibly higher in elevation than the surrounding floodplain, the stratigraphic evidence suggests that the sediments forming the river bank in this location are of Pleistocene or greater age, and do not appear to be equivalent to the Holocene clays that form the channel walls throughout much of the project area.

Despite the fact that artifacts were found within the channel at vertical proveniences several meters below the top of the river bank, these appeared to be eroded from their original contexts. Artifacts believed to be in primary context were observed only within the uppermost 35 cm (13.8 in) of the bank profile. This upper 35 cm was a zone of sandy loam that overlies a zone of light brown clay with orange mottling forming a series of low knolls in the floodplain. Despite its location on the river bank, the

depositional context of 41HP150 is very similar to that of sites located on these knolls. Several of those knoll sites are tested; and one (Thomas site, 41DT80) extensively excavated.

At 41HP150, a single shovel test unit (30 cm in diameter) was placed atop the bank and lithic debitage, fire-cracked rock, and one undecorated ceramic sherd were recovered from it. All artifacts were within the upper, sandy loam zone. No faunal remains were found in this shovel test, nor were any observed eroding from the channel profile. Several other floodplain knoll sites located nearby exhibit dark, organically stained middens with excellent faunal preservation. In contrast, 41HP150 lacked any indication of a preserved midden.

Potential impacts to the site include either destruction by borrow pit construction or inundation by the conservation pool of Cooper Lake. No further work is recommended at site 41HP150.

T33

(possible continuation of 41HP6)

This heavily impacted locality is situated on the west bank of an unnamed creek just north of the dirt road which formerly ran west from Harper's Hill (Figure 3-47). The site consists of an eroded surface scatter of lithic artifacts on either side of an old levee system about 35 m (114.8 ft) west of an unnamed tributary of Moore Creek. The material is located on a flat area of Nahatche soil,

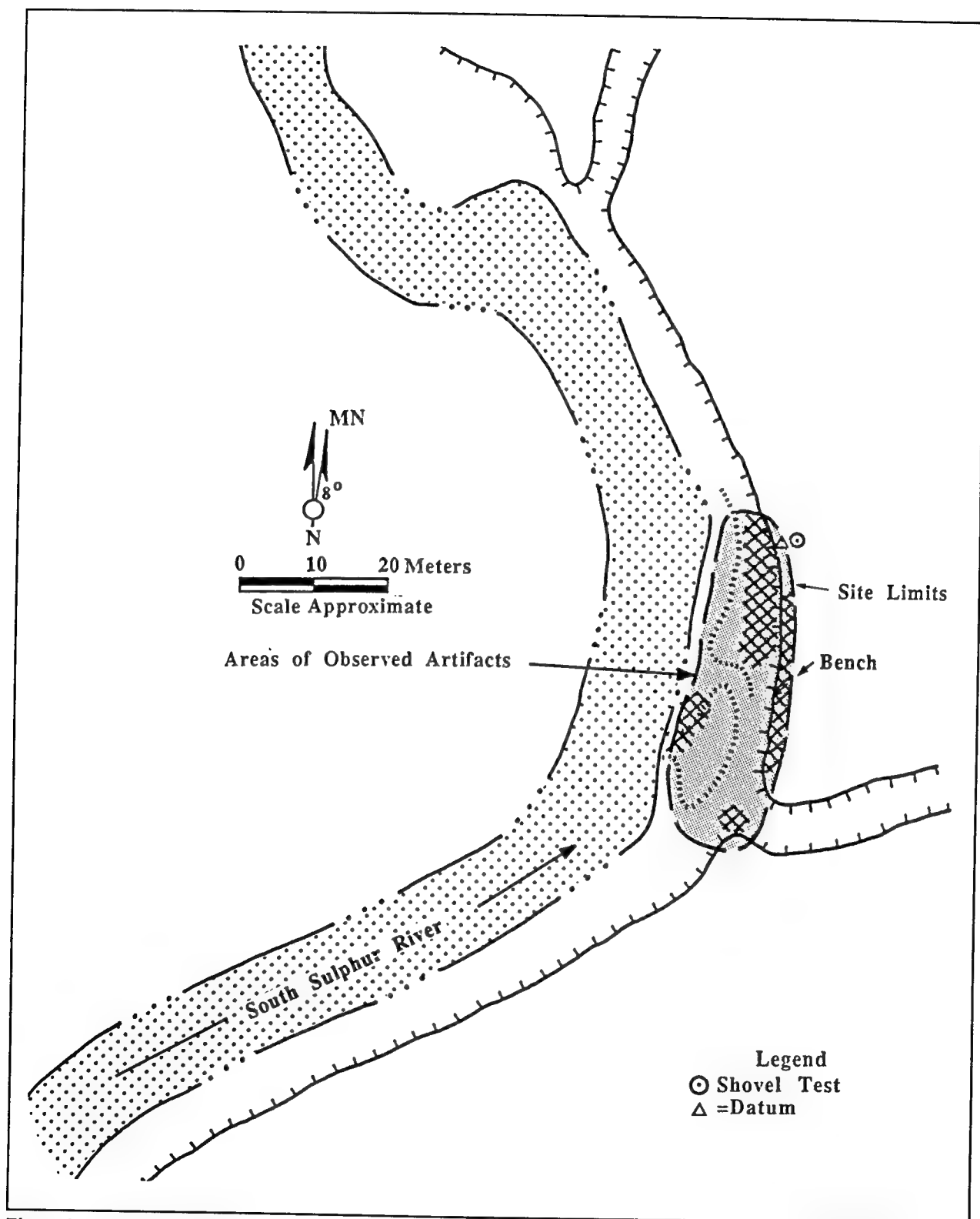


Figure 3-46. Major topographical features, location of surface finds, and placement of test units at site 41HP150.

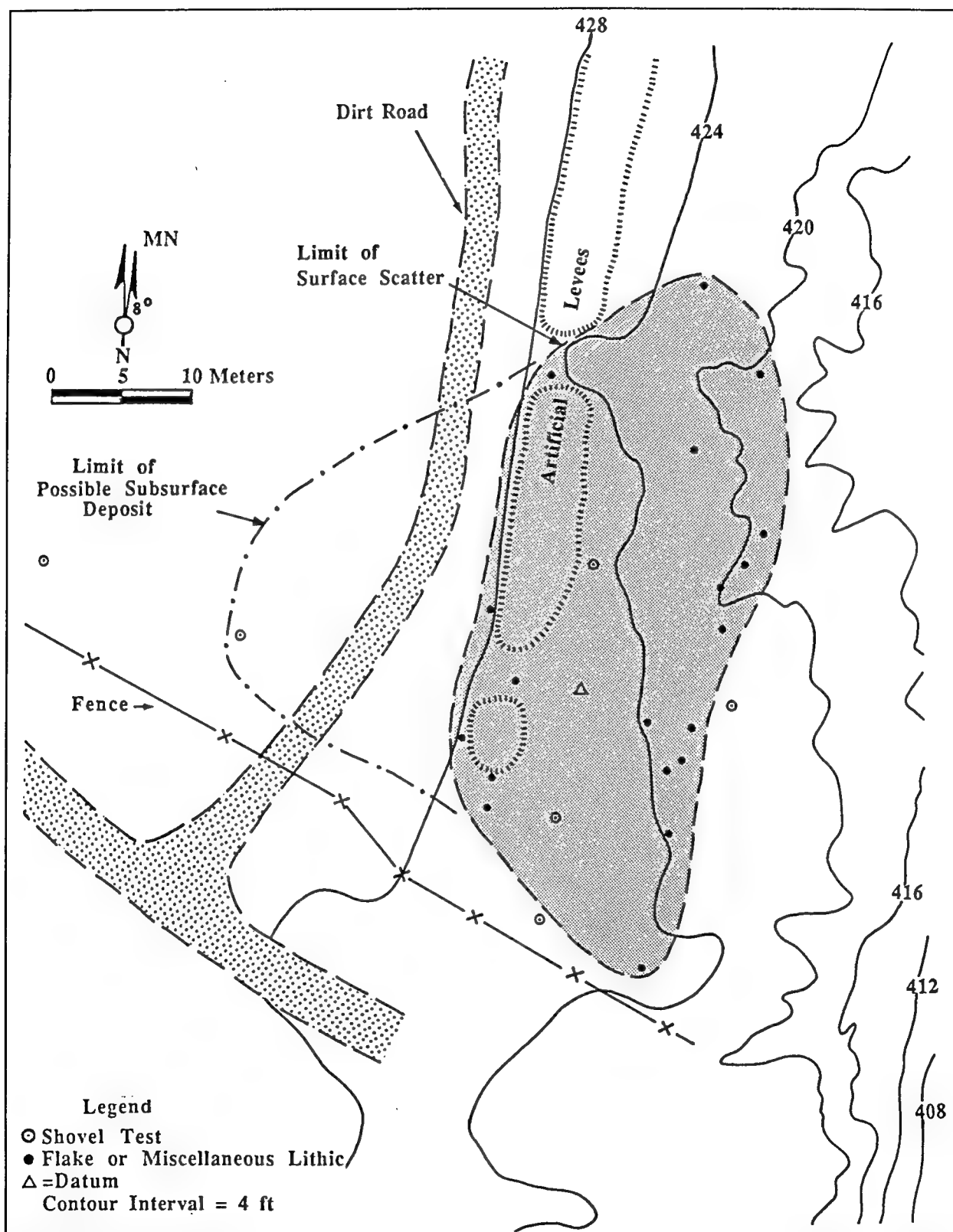


Figure 3-47. Major topographical features, location of surface finds, and placement of units at Locality T33, which possibly is a continuation of site 41HP6.

clay loam to silty clay loam to loam floodplain soils, which is heavily eroded on its eastern margin closest to Moore Creek. The majority of the site area is at an elevation of ca. 129.2 m (424 ft) amsl, with the eastern margin eroded to as low as ca. 127.1 m (417 ft) amsl next to the creek. Apparently, a large amount of the site was destroyed by the construction of the levee system and much of the artifactual material visible on the surface originated from these eroded levees. The scatter of surface material covered ca. 1750 m² (50 m [164 ft] north-south x 35 m [114.8 ft] east-west). The site will be completely inundated by the conservation pool of Cooper Lake. This site has not been given a permanent state number, due to its possible confusion with the previously recorded site 41HP6, reportedly in this same general area. In fact, T33 may actually be a continuation of site 41HP6.

Surface materials include a relatively large amount of lithic debitage and one uniface. Raw materials include both local Ogallala quartzite and finer quality cherts, presumably of nonlocal origin. In addition to the prehistoric remains, a large amount of recent material, including bottles, cans, auto parts, mattress springs, etc., are scattered about on the surface. Apparently, the area is used as a local camping spot. To better determine site

size, a series of six shovel tests was placed around the site, both within and beyond the surface artifact scatter. These were uniformly 30 cm (11.8 in) squares and screened through 6.4 mm (0.25 in) hardware cloth. The area between the old levee and creek showed extensive disturbance and redeposition of sediments, indicated by an upper zone of laminated fine sands about 10-20 cm (3.9-7.9 in) thick, presumably originating from the eroded levees. The shovel tests within the limits of the surface scatter contained two flakes and nineteen fragments of glass. Beyond the limits of the surface scatter to the west, one shovel test contained a single flake, extending the limits of the site by about 20 m (65.6 ft) in that direction.

Unfortunately, the degree of disturbance and the lack of any temporally diagnostic artifacts preclude any reliable estimation of site function or period of occupation. Despite the relatively large number of prehistoric artifactual remains on the surface of the site, no further work on site T33 is deemed necessary subsequent to the recording and shovel testing involved with its initial location. This decision is based largely on the highly eroded and disturbed nature of the surface finds, and the lack of any well preserved deposits with high artifact densities in the uneroded areas of the site.

ARCHAEOLOGICAL TESTING AND EVALUATION OF HISTORIC SITES

David H. Journey, Melissa M. Green,
and Randall W. Moir

4

Archaeological testing and site evaluations were conducted on historic properties in the Cooper Lake dam easement and borrow pit survey area (Figure 4-1). Archival research was performed for the entire Embankment survey area. As this research revealed, the former occupants of some sites were tenants or day laborers. The names of some households have been lost over time and there is no trace of their identities from archives or informants. Other sites were occupied by multiple nuclear and extended families. All historic sites encountered during the survey phase that were more than 50 years old received formal site designations (i.e., TARL numbers). Shovel test probes and intensive surface evaluations were then conducted. This helped place each historic property into a temporal, socioeconomic, and functional study cell. These assignments were used to categorize the archaeological and historical properties in regard to their potential to answer questions outlined in the various draft and final versions of the Cooper Lake research design (Moir et al. 1987; Moir and Journey 1987, 1989). Each historic site was evaluated for its potential significance under all four criteria of the National Register of Historic Places (36 CFR 800).

DELTA COUNTY SITES

41DT107:

The John T. Talley Homestead

Site 41DT107 was situated on the southern edge of a broad upland interfluvium between Doctors Creek and the South Sulphur River. The Wilson loam is the dominant soil, which was described as prairie in the original land surveyor's notes dating to the 1840s-1850s. The site is located at 132.7 m (435 ft) amsl and is in the dam embankment and borrow zone. It was the former residence of John T. Talley, situated on the William R. J. Brown survey tract in Delta County. This tract falls within an area known as Pecan Grove located in Granny's Neck. The Talley family presumably moved onto the property by 1888 and maintained it until the 1940s when it was sold to the Waters family. The John T. Talley site is located ca. 1 km (.65 mi) south of Doctors Creek along the east side of the Bonham to Jefferson Road or old Harper's Crossing Road (Figure 4-2). The east/west road from Pecan Grove to Liberty Grove is located ca. .5 km (.3 mi) north of this site. The site is covered with grasses,

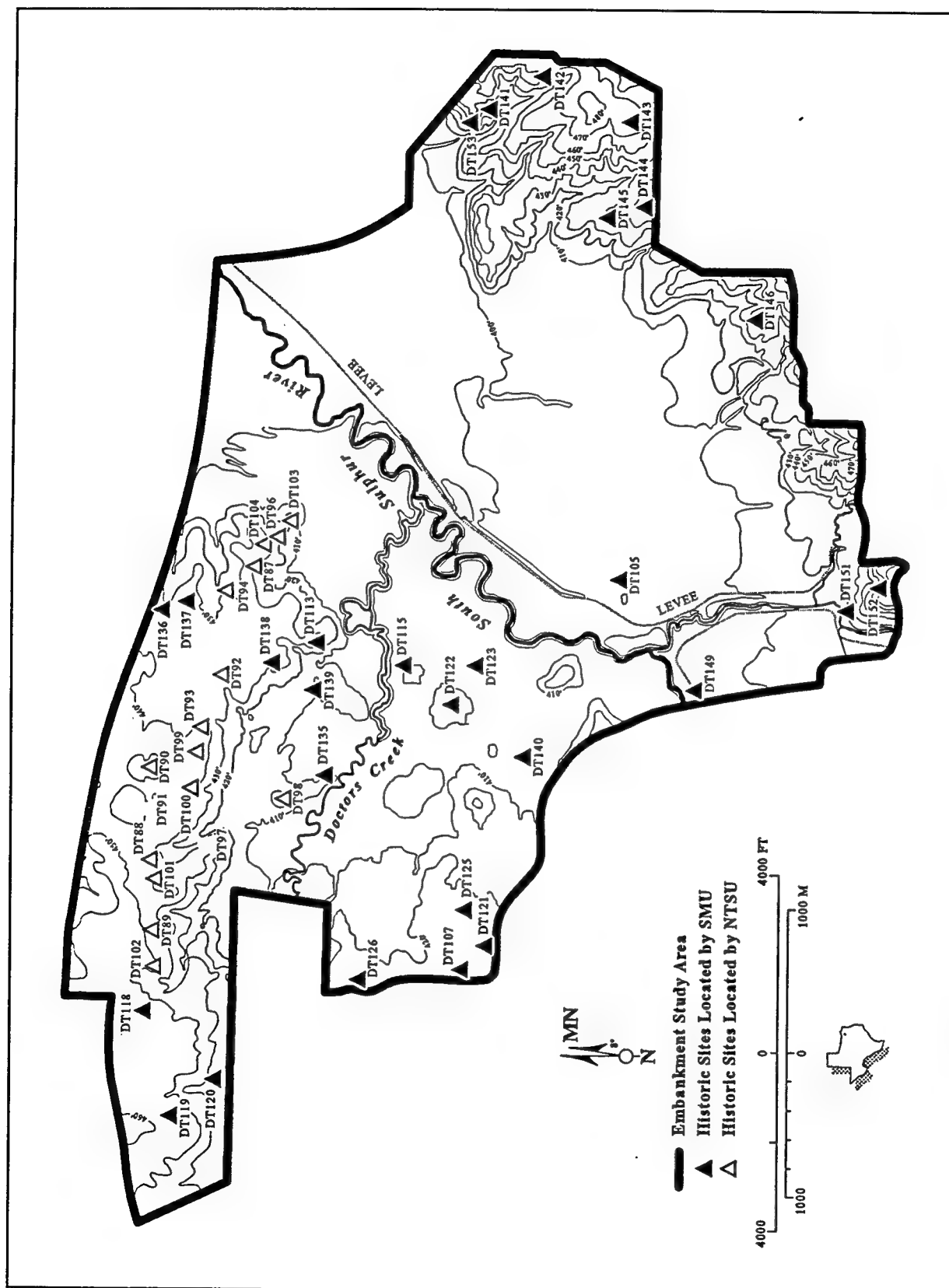


Figure 4-1. Distribution of all tested and surveyed localities including those with no site designations (i.e., recent/destroyed).

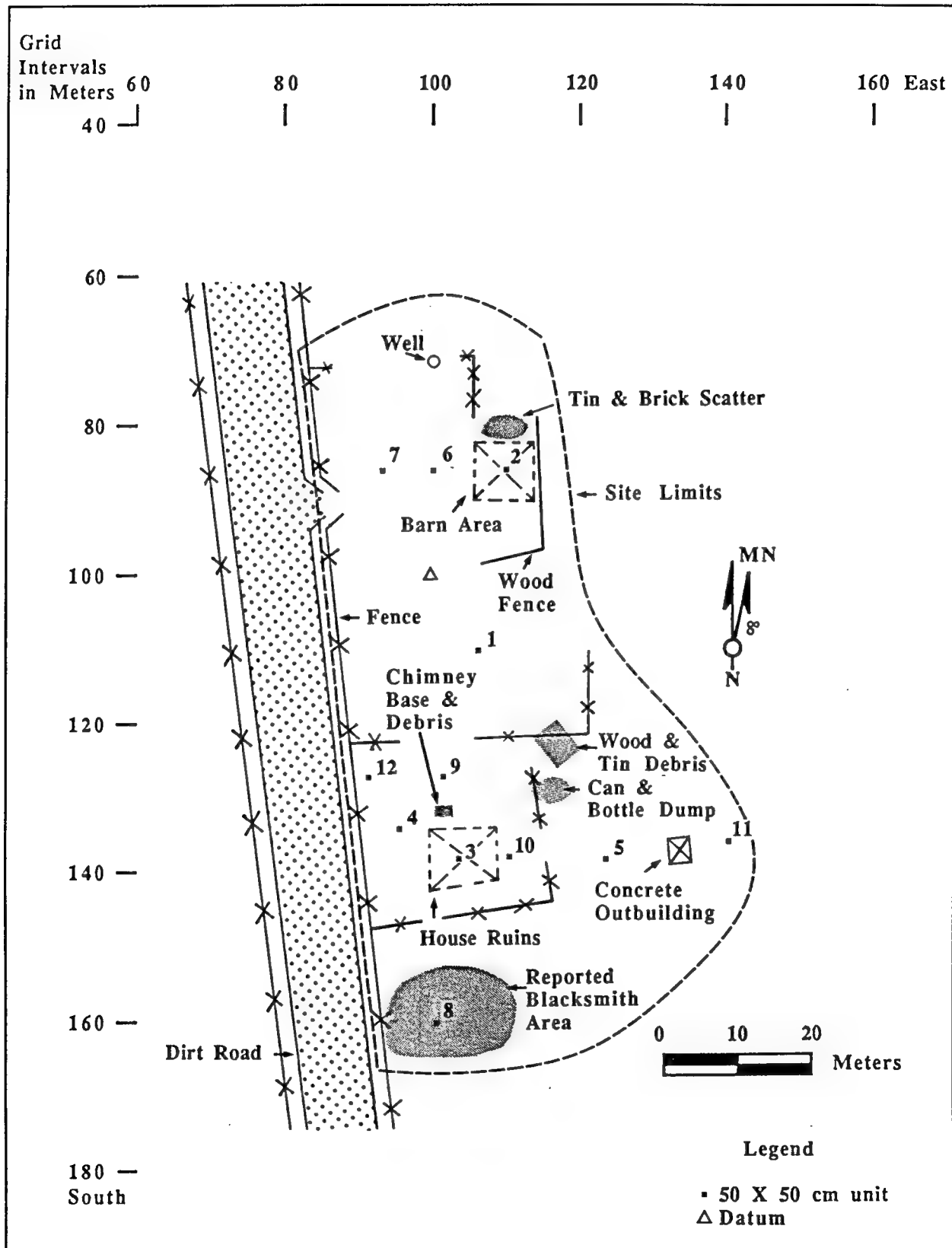


Figure 4-2. Major architectural features and location of excavation units at site 41DT107.

young hackberry and honey locust trees, and a few older bois d'arc trees. The soil is mapped as a Wilson silt loam; a prairie soil of the Wilson-Normangee-Crockett association. The remains of two large buildings (the house and barn) were evident on the surface, but only the concrete block storm shelter (built in the 1920s) on the eastern side of the site is still standing.

John T. Talley was born in Nashville, Tennessee in 1859. It is not known exactly when he arrived in North-east Texas. In 1887, however, he married Elvira Ann Susan Alexander in Sulphur Springs, Hopkins County, and both are shown in the family portrait (Figure 4-3). As this was the second marriage for both, Susan brought a daughter with her. The couple had six children from 1888-1901, all born in Delta County. At least three of their children, John B., Charles W., and Phoebe A., went on to own land adjacent to or near their father's (41DT121, Locality T120, and 41DT126 respectively; also see Figure 4-1).

According to informant information, the house that Talley built for his family was a large L-shaped frame dog trot. An early 20th century photograph (Figure 4-3) of the family in front of their homestead shows part of their house. The barn, also in the photo, was built in 1895 when "they rode all the way to Jefferson for the lumber" (Sam Wheat, personal communication 1987).

When first encountered, 41DT107 was listed as a mid-20th century homestead. This was due to the relatively recent material found on the surface throughout the yard. After talking with local informants, including a granddaughter of John T. and Susan Talley who was born on the property, it was decided that testing for the turn-of-the-century component and material was necessary.

A total of 12 50 x 50 cm (19.7 x 19.7 in) units were dug across the site (see Figure 4-2). Informant information was heavily relied upon in the placement of excavation units in hopes of locating and recovering the earliest component. The units were placed in locations identified as the house, barn, front and back yards, orchard or family garden, and a blacksmith shop. Unfortunately, little in the way of artifacts was found to substantiate an intact early occupation. Most artifacts dated post-1910. Although the distribution and recovery of older artifacts did not indicate an intact early component, three features were encountered and explored. Two handmade brick concentrations, one in the house and one in the barn area, were found in Units 3 and 6 respectively. Also found was a large concentration of slag, cinder, charcoal, and general refuse found in Unit 8 indicating the blacksmithing area to the south.

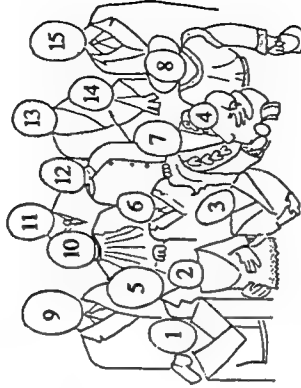
The brick feature in Unit 3 (S138 E104) was encountered just under the grass. The bricks were loosely

oriented in a north/south direction and only one course thick. Associated with these bricks was a small burned area containing a large quantity of nails. It was concluded that these bricks, which only extended north and east from the exposed area another 20 cm (7.9 in), were the remnants of a walkway located in the dog trot of the house, and the burned area was probably debris from a burned pier.

The brick feature in Unit 6 (S86 E100) was found to extend approximately a meter north/south and 40 cm (15.7 in) wide from the original unit. These bricks were also oriented in a north/south direction and were only one course deep. It was concluded that this feature was also the remnants of a walkway or driveway in front of the barn.

The concentration of slag, cinder, charcoal, and refuse found in Unit 8 (S160 E91) was encountered in the small grove of locust trees on the south side of the site pointed out by informants as the blacksmith shop. Highly rusted fragments of iron, iron bolts, and some pieces of iron machinery plates were recovered. Copper saddle rivets, burned coal and coal slag, as well as unburned low grade bituminous coal were recovered from the unit. All of these support the informant inferences regarding blacksmithing activities and indicate that they were conducted mainly during the second quarter of the 20th century. A piece of coarse grinding wheel (possibly carborundum) was also recovered along with a rusted 3/8 in (1 cm) spiral iron drill bit. A large quantity of clear glass, a white milk glass inset cap fragment, and other pieces of fruit jar type glass were also recovered from this unit. The comparatively late date of this smithing area, however, along with the recent age of the entire site, reduces the research value of this kind of feature. Many Texas farm operations conducted their own on-site machinery repair shops and smithing facilities. The late age of this feature makes further excavation questionable.

A total of 1,727 artifacts were recovered from a 4400 m² (14,435.6 ft²) area and yielded a high average of 144.6 artifacts per unit (Table 4-1). The artifact assemblage consisted of architectural remains (*n* = 936), miscellaneous metal pieces (*n* = 424), and bottle/table glass (*n* = 101) from the 20th century. Of the architectural remains, 452 were brick fragments and 285 were nails. Among the more sensitive chronological indicators, only 10 ceramics and 14 window glass sherds were recovered. Machine made bottle glass (mostly clear in color) was common. Less than a half dozen possibly late 19th century bottle glass sherds were present among the 101 recovered. The glass, ceramic, and personal items (*n* = 10) recovered all fell into a date range from ca. 1880 to present; peaking at the 1910-1940 period. The ceramics consisted of



- 1=Chowning girl - daughter of Mark & Betty
- 2=Lucille - Rena's daughter
- 3=Cecil Chowning - son of Mark & Betty
- 4=Marie - daughter of John & Annie Talley
- 5=J.T. Talley
- 6=Chowning boy - son of Mark & Betty
- 7=Susan Talley
- 8=Phoebe - daughter of J.T. & Susan
- 9=William - son of J.T. & Susan
- 10=Eva - daughter of J.T. & Susan
- 11=Mark Chowning
- 12=Betty Chowning - wife of Mark - daughter of Susan
- 13=Annie - wife of John Talley
- 14=Rena - daughter of J.T. & Susan
- 15=John - son of J.T. & Susan



Figure 4-3. Early twentieth century photographs of the John T. Talley family: family portrait (top left); and in front of their home (lower left). Photograph at the top right identifies the family members. (Talley News 1(2) 1981)

TABLE 4-1

Overview Of Artifact Assemblages From Historic Sites Tested by SMU In 1987

Site #	Barbed Wire	Brick	Cement/Mortar /Concrete	Ceramic	Electrical Parts	Flora/Fauna	Fire Arms	Fuel Remains	Glass	Hand Tools	Horse & Stable	Misc. Metal	Misc. Other	Nails	Building Materials	Personal Items	Staples/Screws	Tin Cans	Window Glass	Total
<i>Delta County</i>																				
107	85	452	25	10	1	24	1	57	101	9	1	424	102	285	57	10	62	7	14	1727
115	2	101	—	6	—	2	1	—	42	—	—	41	5	23	—	5	25	—	2	255
119	—	198	11	18	—	11	—	—	182	—	—	69	8	94	1	5	78	2	38	715
120	4	13	62	1	—	1	2	—	14	—	—	6	6	27	2	3	—	1	2	144
121	12	502	67	35	—	18	4	9	160	1	1	99	93	114	2	4	233	4	18	1376
122	—	53	1	6	—	—	—	1	36	—	—	5	6	11	—	—	16	—	6	141
123	1	46	1	2	—	—	—	2	25	2	—	14	—	17	—	1	4	—	2	117
125	11	119	—	26	—	7	1	—	31	1	—	11	—	31	1	2	—	4	2	247
135	1	56	2	4	—	1	1	—	25	—	—	11	1	4	—	—	—	—	7	113
136	—	293	9	3	—	1	—	—	4	—	—	3	1	13	—	—	—	—	—	327
137	—	112	3	—	—	—	—	—	40	—	—	4	—	9	—	—	—	—	8	176
138	3	225	4	31	—	6	1	—	25	—	—	23	19	29	3	2	12	—	4	387
139	—	—	—	1	—	—	—	—	4	—	—	—	6	1	—	—	—	—	—	12
140	17	14	23	4	—	1	—	14	53	—	—	34	6	23	1	—	14	—	12	216
<i>Hopkins County</i>																				
105	—	545	—	3	—	—	—	—	4	—	—	—	—	—	2	—	—	—	—	554
141	7	14	—	20	—	—	—	—	47	1	—	103	1	30	—	—	1	2	11	237
145	111	5	4	23	—	8	1	—	79	1	—	10	140	43	1	29	24	2	6	487
146	3	42	21	16	—	4	—	—	151	—	—	13	1	30	2	4	27	3	36	353
151	20	110	6	6	—	—	1	—	6	1	—	10	1	17	—	—	—	2	5	185
152	14	210	21	35	—	37	1	—	127	2	—	55	119	68	10	4	9	4	57	773
153	7	23	—	13	—	—	1	1	45	1	—	6	3	16	—	2	17	1	16	152

whitewares and ivory tinted whitewares, and three sherds of an older ironstone teacup. One thin porcelain saucer sherd (possibly Japanese) was recovered and was once decorated by an overglaze single banded line. Peach pits were recovered along with a cow phalanx, a sawn hamsteak bone, and several other animal bones. Red rubber gasket fragments for fruit jar covers, cellophane and toy plastic parts, imitation mother-of-pearl plastic matching sleeve buttons, and other items underscore the post-1930 dominance of the occupation. Plastic (post-1940) was recovered from three units in the house area and from one in the barn. Other very modern items recovered consisted of aluminum pop tops, a cigarette

filter, and a vehicle light bulb (possibly from a tail light). Composite asphalt shingles with crushed green slate exterior surfaces were recovered from the house area. These date from the 1920s and 1930s (Sears, Roebuck 1927:1080). Based on the bottle glass, abundant wire nails, plastic items, and rubber pieces, the site was most heavily occupied from about 1915 to the 1950s. Since the 1950s, the area was also used for cattle and livestock activities adding a veneer of recent litter on top of the older domestic components.

All of these chronological indicators along with the site alterations brought on by post-1960 livestock usage and the unsatisfactory recovery of intact turn-of-the-

century components make the research value of this site highly questionable. In addition, the extensive disturbance wrought by post occupational ranching has further reduced the archaeological integrity of this site. Therefore, no further work is recommended for 41DT107 at this time.

41DT115

Site 41DT115 is situated on a small terrace knoll in the Doctors Creek floodplain (Figure 4-4). The dominant soil type is the Freestone-Hicota Complex, consisting of sandy loam mound fields surrounded by Kaufman clay. The site is located at 125 m (410 ft) amsl in second growth forest. The presettlement vegetation was a transitional slope to floodplain woodland composed of post oak, elm, ash, and hackberry.

The site covers about 1800 m² (5905.5 ft²) and is adjacent to a ca. 1910-1930 dirt road that connected Pecan Grove with Tucker Cemetery and the community of Cedar Creek. An early historic cemetery was reported by informants in this area, but no evidence supported this report, despite repeated reconnaissances and site evaluations. There is a possibility that a small brick clamp was once present, associated with a short-term domestic occupation, probably that of a tenant.

The historic investigations at 41DT115 were at first directed toward the chance that this may be the historic cemetery noted by some informants rather than the location of a tenant house. A number of units were excavated across the site and two of the depressions on the site were also investigated. A detailed reconnaissance of the area also discouraged further consideration of this site as a possible cemetery. Artifacts on the surface and other features suggested a tenant homestead. Many of the small "depressions" observed in the area were the result of excessive burrowing and scavenging activities of armadillos; not collapsed coffins.

The old county road to the west formed the western boundary of the site just as the newer road appeared to be the eastern limits. The more recent remains of a lumber and sheet metal deer stand were observed on the east side of this newer road.

Two large depressions near the center of the site were recorded. The largest one may originally have been a storm cellar but erosion and excessive churning within and around it have enlarged it greatly. The smaller depression is probably a collapsed well. A single shovel test was dug into this smaller depression exposing a large piece of cast sheet iron, some shoe leather, numerous brick fragments, and a whole ironstone churn lid. Out of the 22 units (all 30 x 30 cm [11.8 x 11.8 in]), Unit 22

(S110 E90) yielded the most domestic material. These items included a piece of ironstone whiteware, nails, bottle glass, and window glass.

Unit 8 (S120 E70) contained a historic stratigraphic sequence within the top 30 cm (11.8 in). The first level (0-12 cm below surface) consisted of a gray-brown silty sand with abundant gravel. This level contained the historic artifacts of brick, wire, and a metal jar lid. Level 2 (12-22 cm) consisted of a medium brown sand mottled with charcoal flecking and a harder orange soil. Gravel, burned bone, and a single shark's tooth (fossilized) were recovered. The third level (22-37 cm) changed to a light brown silty sand with a minute amount of mottling in the upper 3 cm (1.2 in). No gravel or artifacts were recovered. After much discussion, it was decided that the mottled and charcoal flecked lens represented a "back dirt" lens resulting from the digging of a well now seen as the collapsed depression just 3 m (9.8 ft) north.

A total of 255 historic artifacts were recovered from a 1500 m² (4921.2 ft²) area (see Table 4-1). This is a relatively low artifact density of sheet refuse and averages only 11.6 artifacts per unit. The artifacts indicate a brief domestic occupation sometime after 1890 and abandonment by 1910-1915. The small assemblage as a whole could represent an occupation of 10 years or less. Manganese solarized and aqua hand-finished, early Automated Bottling Machine (ABM), and Owens bottle glass were represented. A pressed glass tumbler, milk glass fruit jar inset cap, and amber bottle glass were also present. Ceramics consisted of two ironstone sherds (one ironstone bowl) and four turn-of-the-century stoneware sherds. A Bristol-slipped churn lid and several natural clay-slipped sherds were present, one from a pressed manufactured stoneware vessel. Only handmade brick and wire nails were recovered. No cut nails were found. A piece of shoe leather (upper with eyelets), an iron ring, and a churn lid (mentioned above) were recovered from Unit 2 placed in the depression at S125 E83. A single *UMC CO. 10 GA. NEW CLUB* shotgun shell dating from 1867-1911 was also collected. The most recent item was an aluminum continuous thread fruit jar lid (post-1927 and possibly ca. 1935-1950; Sears, Roebuck 1927:647). Several miscellaneous metal pieces, faunal material, and other shoe leather were also counted among the artifacts retrieved from the site. Still, the majority of excavated items support the inference that a domestic occupation was present from the 1890-1915 period, and probably lasting 10-15 years at most.

This site was one of eight sites identified in a 364.4 ha (900 ac) area near Doctors Creek. All were situated in low topographical positions within the periodically active floodplain. This, combined with their generally

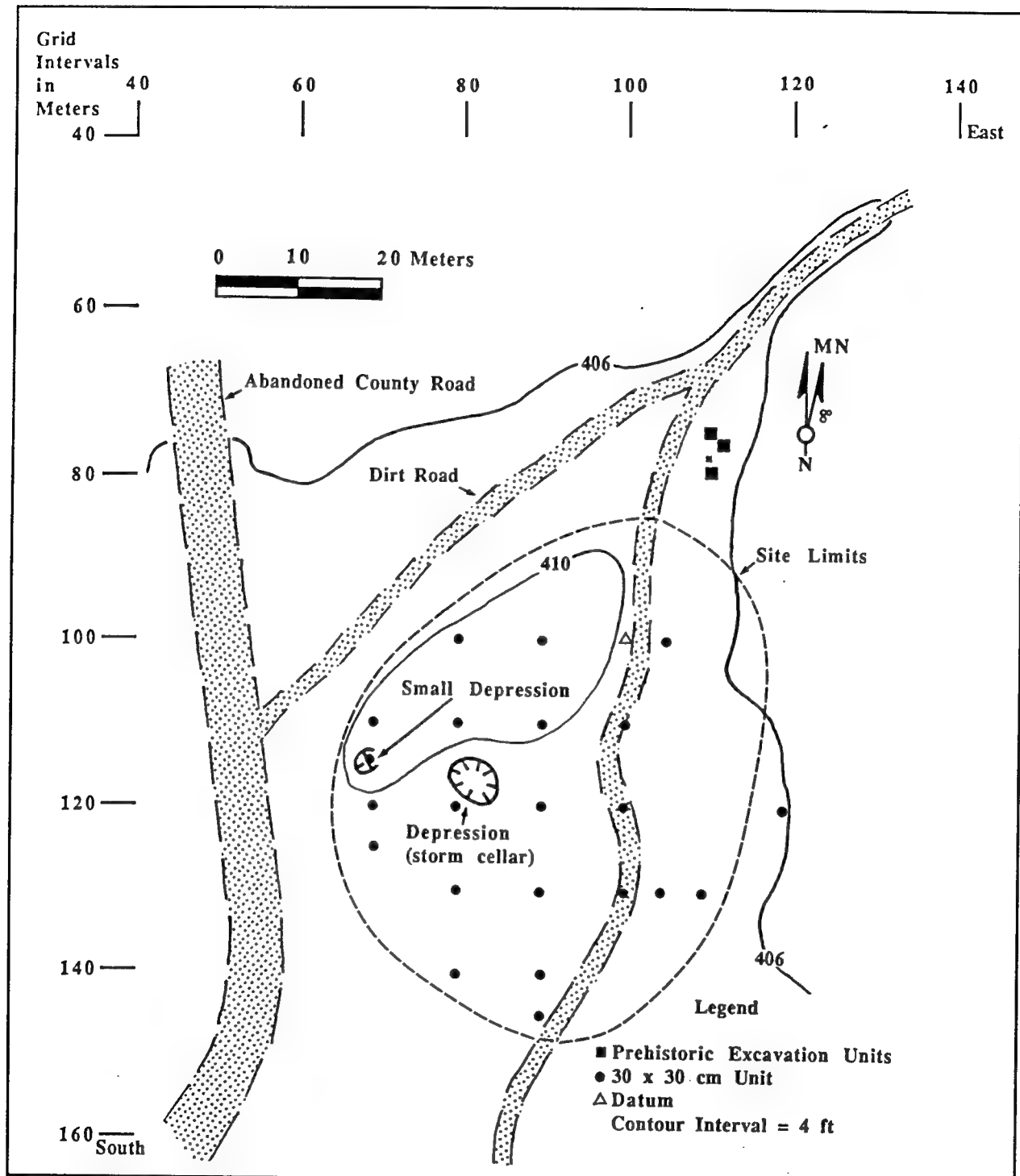


Figure 4-4. Major topographical features and location of excavation units at site 41DT115.

turn-of-the-century ages and short-term, low density occupations confirm a tenant-occupied status; also noted by local informants. For these sites, no identities could be provided. Archival research named landowners, but

proved fruitless in the identification of tenants.

Additional investigations at this site were not recommended after consultation with Corps representatives. It was anticipated that future

reconnaissances outside the embankment area would encounter better preserved, short-term tenant sites with documentary and informant controls. Consequently, no further work is recommended for 41DT115 based on the information available at this time.

41DT119

Site 41DT119 is located in the northwest corner of the Dam Survey area on the Z. Dawson Survey east of the old Bonham to Jefferson Road (old Harper's Crossing Road). Crockett loam is the dominant soil type. The elevation is 138.8 m (455 ft) amsl and the presettlement vegetation consisted of a transitional post oak forest to post oak savannah. This site was shown as a historic farmstead on the 1936 and 1941 maps. Only a barn and corral complex are shown on the USGS topographic maps.

A total of 19 units were excavated (Figure 4-5) over a site area of 4100 m² (13,451.4 ft²) producing 715 artifacts (see Table 4-1). The site density is 37.6 artifacts/unit. Most of the small surface depressions observed had been considerably altered (possibly created) by armadillos. Most of the intact surface features (i.e., fence posts and feeding troughs) encountered were associated with ranching activities, the terminal use of the site dating to the 1970s and early 1980s. A few disturbed ornamental plants remained in the original yard near the fence. A single handmade brick feature - possibly a walkway from the drive up to the house - found in Unit 5 (S115 E100) was investigated. Due to the late 19th bottle glass fragments found in association with the bricks, it was concluded that the feature was related to the late 19th century domestic occupation. A dense artifact concentration was encountered on the southern edge of the site suggesting a small refuse dump.

The assemblage recovered from this site contained artifacts dating from the mid-19th century up to the mid-20th century. Brick (n = 198) and vessel glass (n = 182) were the dominant artifacts recovered. Window glass (n = 38) and nails (n = 94) were also present. A total of 18 ceramics were recovered. Miscellaneous metal items (n = 69) were common. A pontiled aqua bottle base manufactured before 1860 was recovered along with some good examples of early salt vaporized stonewares (ca. 1850-1875). A flow blue monochrome gaudy Dutch-type floral transitional ironstone plate sherd and a fragment of copper luster ironstone also indicated a pre-1880 occupation. Machine blown clear bottle glass, a stenciled polychrome whiteware, a black plastic comb, a pneumatic tire valve stem, and wire nails indicate occupation well into the mid-20th century. Plain and

molded ivory tinted whitewares and pressed milk glass revealed site activity up to at least 1945. An iron hame and an iron clevis with the pin intact were also recovered from surface contexts. Most brick fragments were handmade varieties and some exhibited glazing. Bottle glass fragments include a manganese solarized crown finish ABM neck, continuous threaded clear ABM jar, cobalt blue sherds, and other machine blown bottle sherds. The bottle glass collection from Unit 5 yielded turn molded, brandy finished, amber and light green bottle necks (ca. 1880-1910); a turn molded, olive green bottle neck (ca. 1880-1910); a light green, hand applied brandy finished bottle neck (ca. 1850-1890); a brown hand-finished snuff bottle neck; and a brown panel bottle embossed with *Patented Mar 25, 1890*.

The thick veneer of 1900-1950 artifacts detracted from the archaeological integrity of this site. Consequently, excavations were stopped at 41DT119 after the testing program and the remaining effort reallocated for prehistoric investigations. We recommended this shift in emphasis away from historic sites containing long occupations and toward sites with 20-60 years of occupation at most, since these properties have a greater potential to address the research questions outlined by the Cooper Lake research design. Also, since post occupational ranching has further reduced the integrity of the archaeological deposit at 41DT119, no further work is recommended at this time.

41DT120:

The Carl V. Dawson Farmstead

Site 41DT120 was the 20th century domicile, barn, and corral complex built by Carl V. Dawson, a grandson of Zephriah Dawson (see Chapter 13), during the 1930s and is located on the Bonham to Jefferson Road (old Harper's Crossing Road) in the southwest corner of the Z. Dawson survey. The original yardscape contains ornamental vegetation and discernible ruins of outbuildings were also noted. The structure had been removed, leaving the bois d'arc piers in place. The site is located at 133.6 m (438 ft) amsl. The dominant soil type is the Crockett loam. The area contained a post oak slope forest prior to settlement. The main research emphasis at this site was documentation of the intact farmscape and evaluation of its significance.

Only two 50 x 50 cm (19.7 x 19.7 in) units were excavated in the active yard and dwelling area (Figure 4-6), which produced 144 artifacts (see Table 4-1). The high density of artifacts is typical of some 20th century homesteads. The dwelling and active yard area covered 900 m² (2952.7 ft²), while the entire site covered 3200 m²

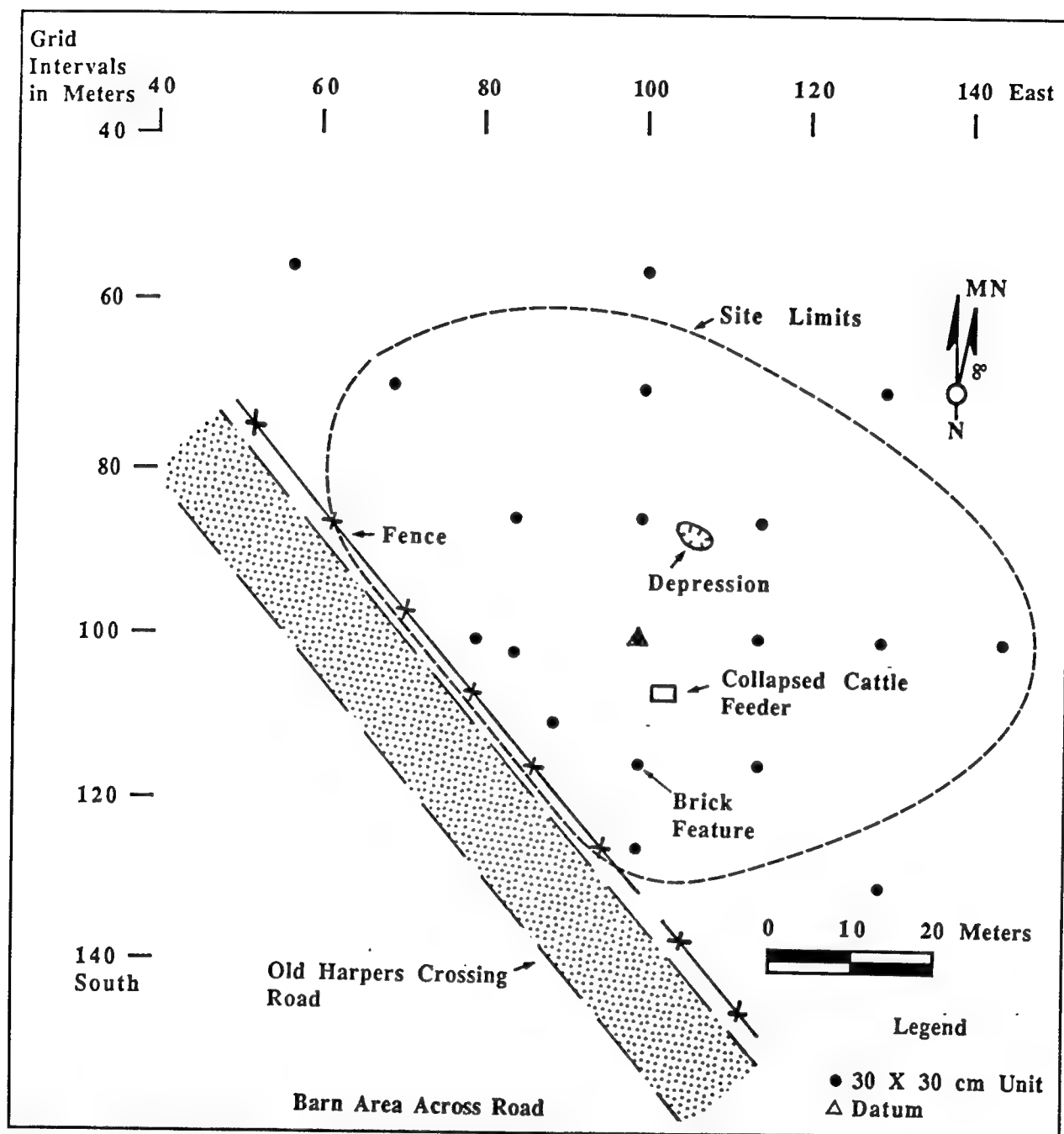


Figure 4-5. Location of excavation units and major surface features at site 41DT119.

(10,498.5 ft²).

A diverse assemblage of 20th century artifacts was recovered from the two units excavated at 41DT120. Artifact frequencies were moderately high, averaging 72 items per unit. Machine made brick, wire nails, and clear bottle glass were recovered from both units. A *Billy Possum* overall snap/rivet was recovered from Unit 1 (S85 E132), whereas an overall snap/rivet with a steam

locomotive design in relief was recovered in Unit 2 (S75 E133). Examples of the latter were recovered in Navarro County at sites 41NV101 and 41NV102 (Lebo 1987b:160). Unit 1 also yielded a sherd of blue washed Bristol stoneware decorated in relief and an iron hinged hasp. Unit 2 yielded two .22 caliber rim fire cartridges, a copper appliqué Griffin, pieces of soft bituminous coal, window glass, milk glass fruit jar inset cap, a plum

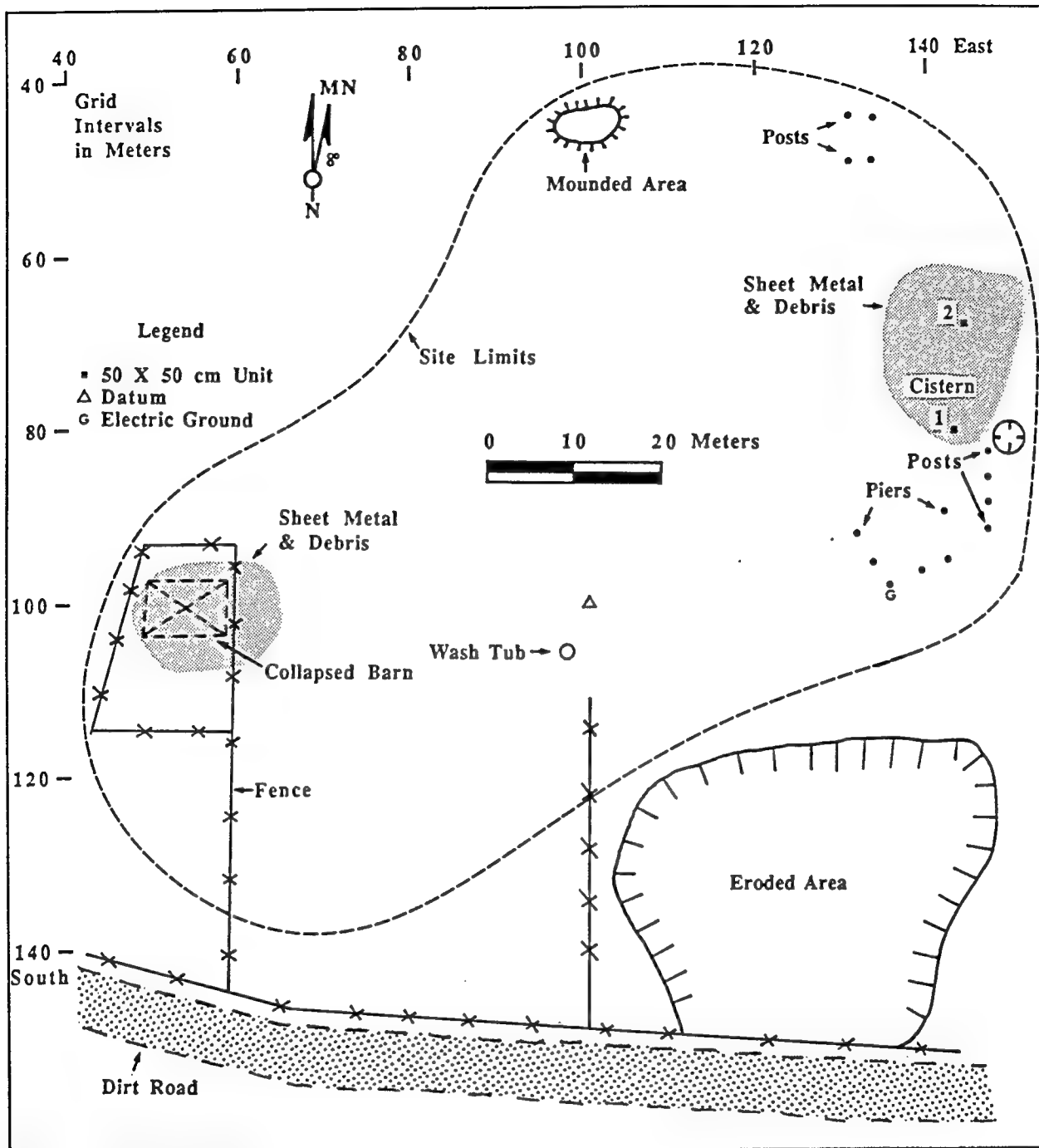


Figure 4-6. Major surface features and location of excavation units at site 41DT120.

pit, wire nails, and a small piece of turquoise, white, and grayish-violet "marbleized" linoleum floor tile.

All of these artifacts indicate that occupation of 41DT120 occurred sometime between 1925-1945 and may have only lasted 10-15 years. The modern age of the occupation and the completion of the landscape

documentation warranted no further investigations at this time and testing stopped after Unit 2. Surface items corroborated the late age of the site and so recommendations for additional work were not issued since the site was considered too recent for intensive study.

41DT121: The John B. Talley Farmstead

Site 41DT121, the former residence of John B. Talley (son of John T. Talley), is located in the Pecan Grove community along the Bonham to Jefferson Road (old Harper's Crossing Road). It is situated at 129 m (423 ft) amsl on the southern edge of the broad interfluvial upland between Doctors Creek and the South Sulphur River. This location is also on the interface between the Wilson silt loam and Crockett loam soils. The presettlement vegetation consisted of a post oak/blackjack oak savannah along the periphery of a large upland prairie.

The site was shown as a farmstead on the 1936 and 1941 maps. On the present ground surface, a keyhole-shaped cellar depression, brick concentrations, and mounds and depressions provided the major evidence for the layout of the former landscape. A total of 13 units (Figure 4-7) were excavated over a 900 m² (2952.7 ft²) area and produced 1376 artifacts (see Table 4-1). The overall site area covers 1700 m² (5577.4 ft²). Test excavations at this site recovered the second largest assemblage for a site not recommended for intensive excavations. Sheet refuse deposits were comparatively dense; ca. 135 items per 50 x 50 cm (19.7 x 19.7 in) unit excavated to sterile. Artifacts ranged from the 1880s to the 1930s and 19th century items were as well represented as 20th century materials. Brick, both handmade and machine pressed (*n* = 502), comprised the dominant artifact category. Sheet refuse items such as glass, both ABM and hand-finished (*n* = 160), ceramics (*n* = 35), and nails (*n* = 114) were abundant. Window glass (*n* = 18) indicates a light-to-moderate sized dwelling. Horse and stable items (*n* = 1) were very rare. Manganese solarized bottle glass, olive green hand-finished bottle glass, and brown snap case finished snuff bottles were present. Late 19th century stonewares (ca. 1875-1900) were well represented with salt glazed, dark Albany-like clay-slipped, and natural clay-slipped varieties evident. Bristol-slipped stoneware, as well as decalcomania decorated whiteware indicated that occupations continued into the 20th century. Plain and relief decorated ironstone and whiteware sherds were recovered. Two overall snaps/rivets were recovered: (1) *Blue Buckle* and (2) *Buck Brand*. An example of the latter was also found in Navarro County, Texas on site 41NV319 dating 1905-1950 (Lebo 1987b:160).

Other 20th century items included a clothes pin wire spring, several fragments of double sided 78 rpm graphite phonograph records, aluminum paper foil, light bulb glass, and machine made bottle glass. A .32 caliber rim

fire cartridge marked *U* and two .22 caliber rim fire cartridges marked "U" and *D* were also excavated. A porcelain gizzard stone, two pieces of slate, coal slag, mollusc shell, bone, and a mended harness buckle conclude most of the categories of diagnostic items recovered.

The assemblage denotes domestic occupation spanning from the 1880s to ca. 1940 and reflects traditional lifeways. The dense sheet refuse contained considerable 20th century materials. This site may have been serially occupied since it was known through informant information that John B. Tsalley moved his family west of the project area when his mother came to live with his family in the 1940s. The large 20th century component at this site supports the recommendation that no further work be conducted at 41DT121 at this time.

41DT122

Site 41DT122 is situated on a remnant knoll in the combined floodplains between Doctors Creek and the South Sulphur River. The site is located at 125 m (410 ft) amsl and lies along a 1910-1930 dirt road extending from the Bonham to Jefferson Road (old Harper's Crossing Road) to Tucker Cemetery and the Cedar Creek Community. The 1860 land survey notes for the Elinder Spenser Survey indicate that the presettlement vegetation consisted of floodplain forest with a substantial grass understory. The dominant soil type is the Benklin silt loam.

The only surface features were the graded and drained roadbed and the well or cistern depression (Figure 4-8). Although 26 small excavation units (30 x 30 cm [11.8 x 11.8 in]) were excavated to sterile at 41DT122, only 141 artifacts were recovered (see Table 4-1). Counts averaged about 10 artifacts per unit and indicate extremely light density sheet refuse covering about 800 m² (2624.7 ft²). Chronologically diagnostic items generally spanned the turn-of-the-century. Transitional brick (*n* = 53) and glass (*n* = 36) were the dominant artifact categories. An aqua, continuous thread ABM fruit jar sherd, dense coal fired transitional machine made brick, manganese solarized bottle and table glass, wire nails, plain whiteware, and brown snap case bottle sherds were recovered. Only one stoneware sherd, an alkaline glazed piece (ca. 1840-1900), was recovered. Most artifacts dated ca. 1895-1925.

Occupation of this site could have spanned only 5-10 years based on the light artifact deposits and sheet refuse. The homogeneity of brick types and especially the dense, inclusion stained, coal or natural gas fired nature of most bricks support a short-term early 20th century association.

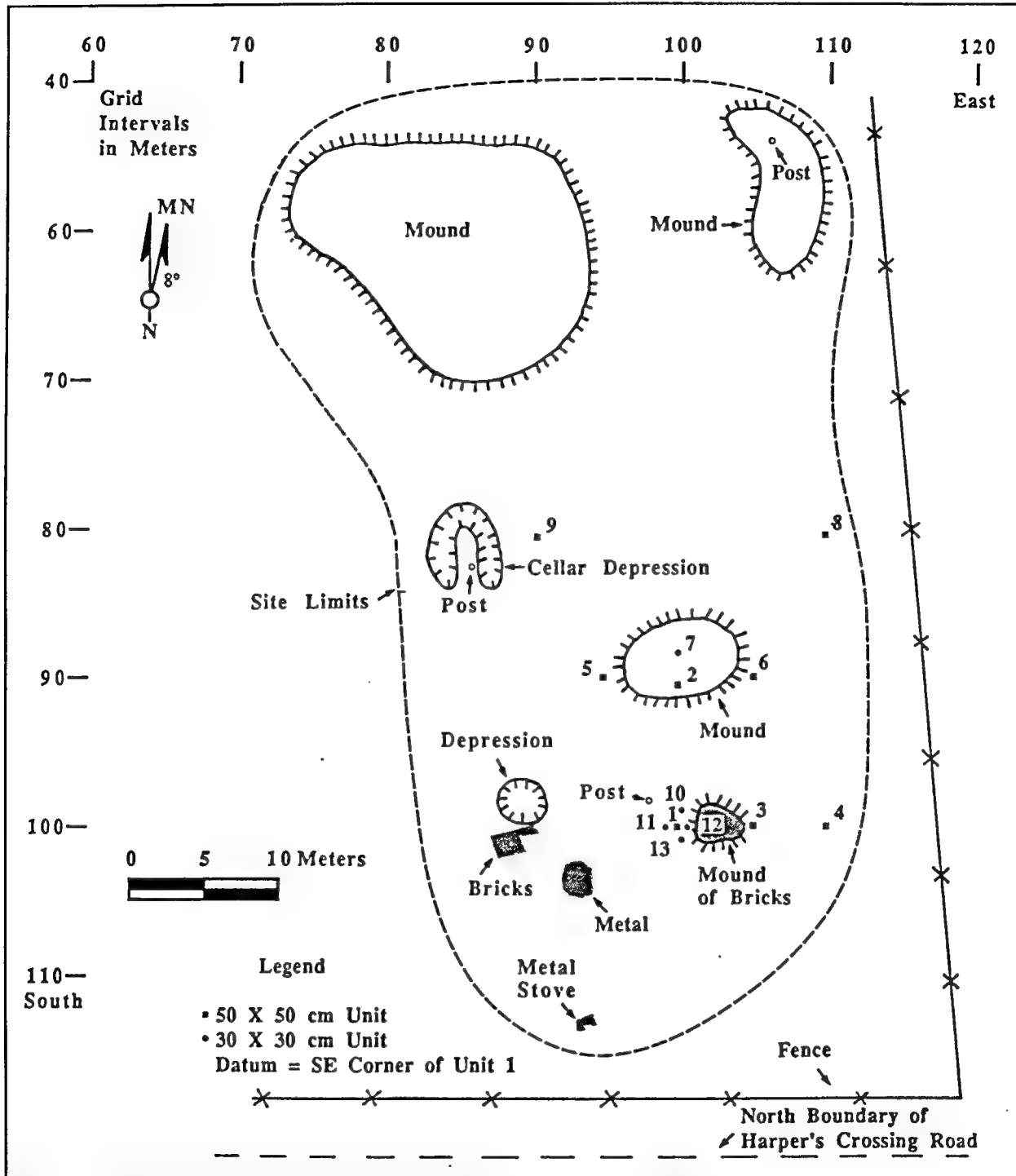


Figure 4-7. Major surface features and location of excavation units at site 41DT121.

Fine tablewares consist of whitewares and one semi-vitrified bluish-tinted ironstone. An acid-etched finely decorated floral relief type, manganese solarized, and pressed table glass sherds were recovered.

Although this site represents a short-term occupation of the local bottomlands during the peak of the cotton farming of the early 20th century (ca. 1900-1930), the light assemblage, few surface features, and lack of known

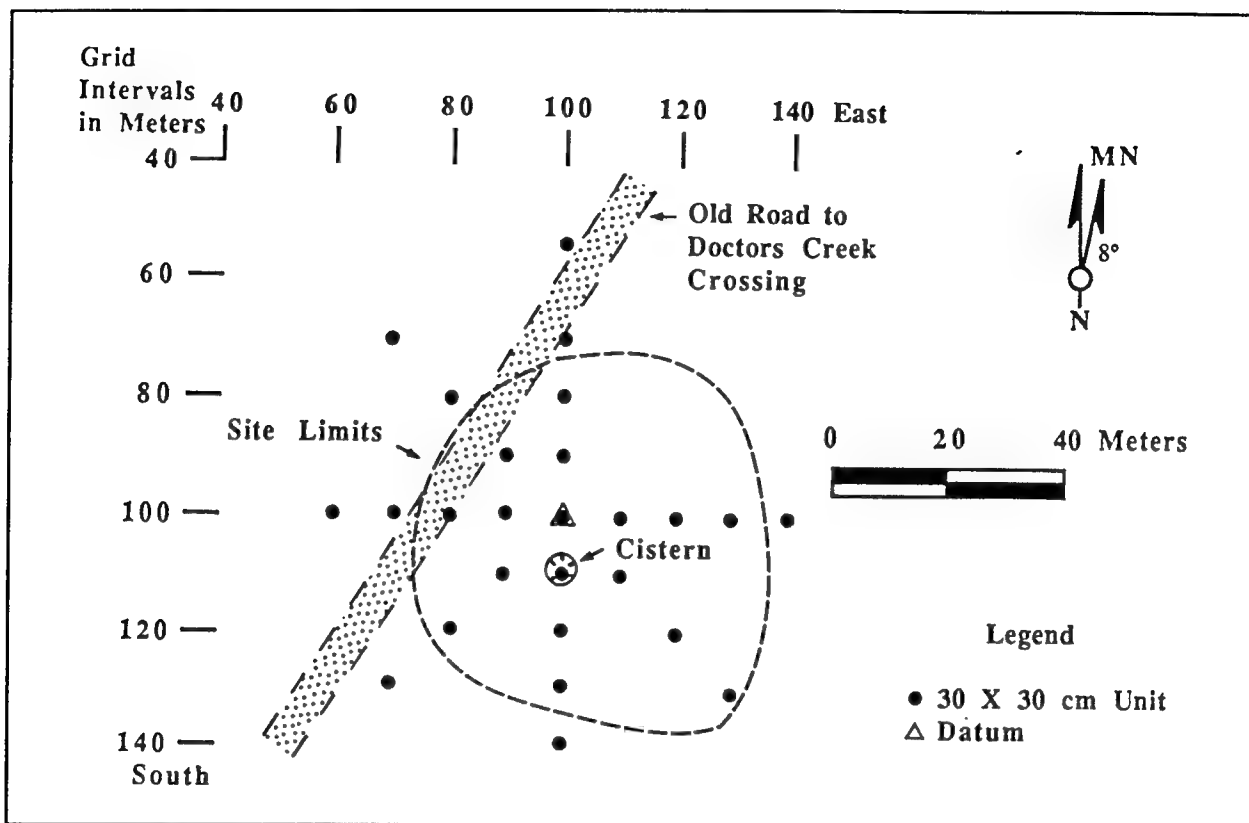


Figure 4-8. Location of excavation units and surface features at site 41DT122.

occupants make this site of questionable research value. Therefore, no additional work is recommended.

41DT123

Site 41DT123 is situated on a low remnant knoll in the combined floodplains between Doctors Creek and the South Sulphur River. The area is frequently inundated, during which a floodplain channel isolates the site from access. The soil types are the Kaufman clay and Benklin silt loam, located at 124.1 m (407 ft) amsl. A floodplain forest was present during the 1840-1860 surveys and is present only in low lying areas today.

A total of 18 30 x 30 cm (11.8 x 11.8 in) units were excavated over a 5000 m² (16,404.1 ft²) area (Figure 4-9) and produced 117 artifacts (see Table 4-1). The distribution of artifacts clustered around a well depression, although a very light sheet refuse band was encountered across the site. A brick cluster was present on the west end of the site, which may be debris from a fallen brick chimney. Following the trend of other historic sites located nearby, artifacts generally denoted turn-of-the-century occupation. Hand-finished bottle sherds and

handmade brick were frequent. Wire nails were dominant although a few cut nails were also present. Soft mortar, not Portland cement, was also present. A turn-finished, manganese solarized crown bottle neck was also recovered and dates ca. 1892-1910. A similarly dated hand-finished snuff bottle lip was retrieved along with a semi-ABM, dark aqua, continuous thread fruit jar sherd. Window glass, coal slag, a late 19th century ironstone plate sherd, a natural clay-slipped stoneware sherd, a steel file, and a S-wrench complete the list of major artifacts represented.

Occupation at 41DT123 occurred sometime between ca. 1895-1915, and could have been limited to less than 5-10 years. This site represents a local aspect of early 20th century tenant farming in the floodplain. Due to low artifact density (less than 19 items per 50 x 50 cm [19.7 x 19.7 in] unit), the over-representation of similar types of sites with spatial and architectural integrity, and the fact that no direct informants who had once lived on the site were available, further data collection was not merited. Consequently, no further excavations are recommended at this time.

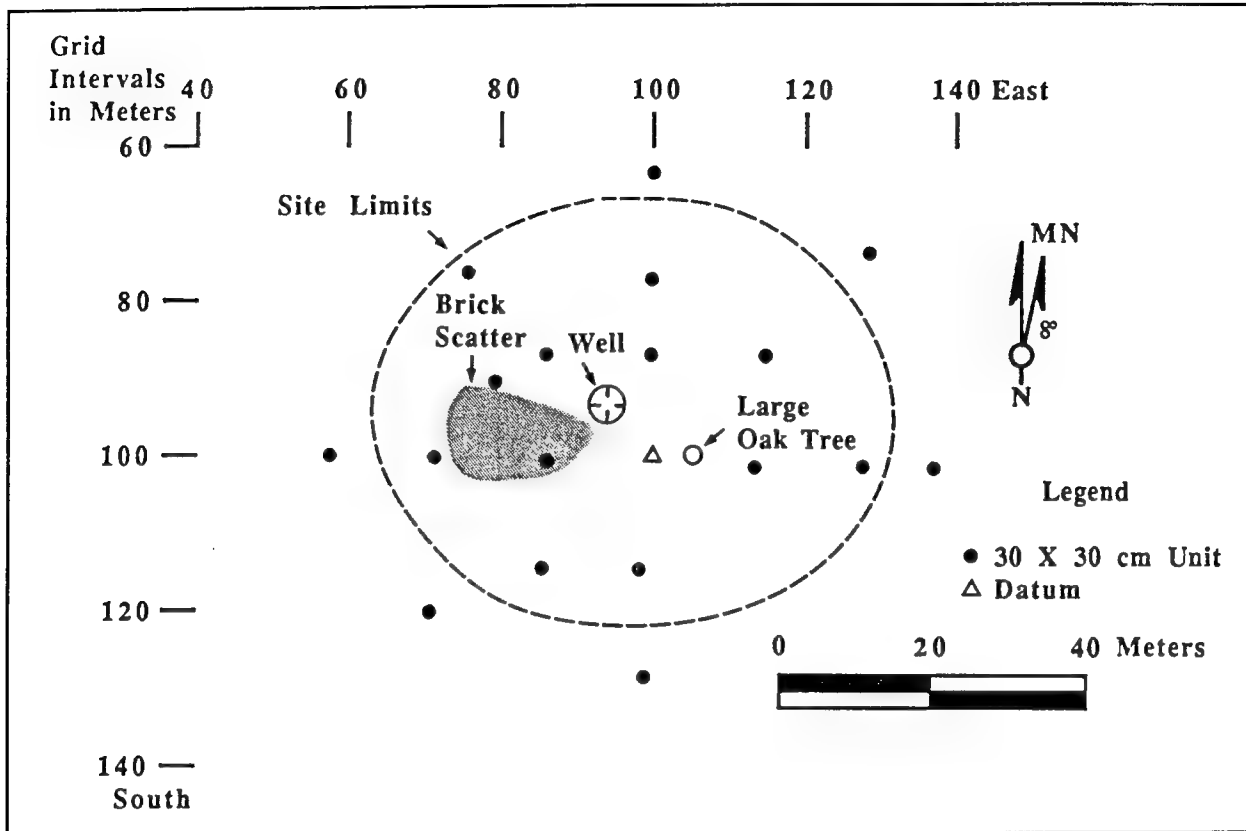


Figure 4-9. Location of excavation units and surface features at site 41DT123.

41DT125: The Alex Sinclair Farmstead II

Site 41DT125 is located on the southern edge of a broad upland interfluvium at 129.6 m (425 ft) amsl between Doctors Creek and the South Sulphur River. It is on a rise overlooking the old Harper's Crossing Road. It is also on the A. Sinclair Survey (1860) and is reported by informants to be the second homesite of the Alex Sinclair family. The first homesite was reported to be in the floodplain outside the dam embankment project area. The dominant soil types are the Annona and Crockett loams.

Other major soils nearby are the Wilson loam (upland prairie soil to the west) and the Freestone-Hicota Complex (sandy loam mound fields) to the east. This area was characterized as a post oak/blackjack oak savannah in the mid-19th century land surveys.

Twenty test pit units were hand excavated (Figure 4-10), producing 247 artifacts (see Table 4-1). Artifacts dating to the mid- to late-19th century occupation are distributed over a 600 m² (1968.5 ft²) area on the top of the knoll. 20th century remains of serial tenant occupations however, are mixed with the older Sinclair occupation material and extend over 8000 m² (26246.6

ft²). One unit in particular was of interest in that a handmade brick cluster with nails, bottle glass, and ironstone sherds associated with it was encountered at S100 E120. This unit was expanded to a 50 x 50 cm (19.7 x 19.7 in) unit in hopes to better identify the feature. It was concluded that this small cluster of brick with sheet refuse associated with it was the remnants of a pier, probably of a small outbuilding. Brick (n = 119) were the most common artifacts recovered. Among sheet refuse items, glass (n = 31) and ceramics (n = 26) were abundant and indicate a typical assemblage for a Texas farmstead. Structural and architectural items were rare, suggesting that some buildings had been removed after site abandonment. Also, it was reported that the Sinclair's once lived in a log cabin on their property, and remnants of a tenant house(s) were located further down hill from the tested area.

Although 41DT125 yielded some notable early artifacts (i.e., pre-1865 glass and ceramic sherds), a discrete midden of this age was not identifiable. Artifacts such as bottle glass and fine tableware also indicated 20th century occupation extending up to at least the 1930s. It is possible that the assemblage represents two distinct temporal components but strong evidence for identifying

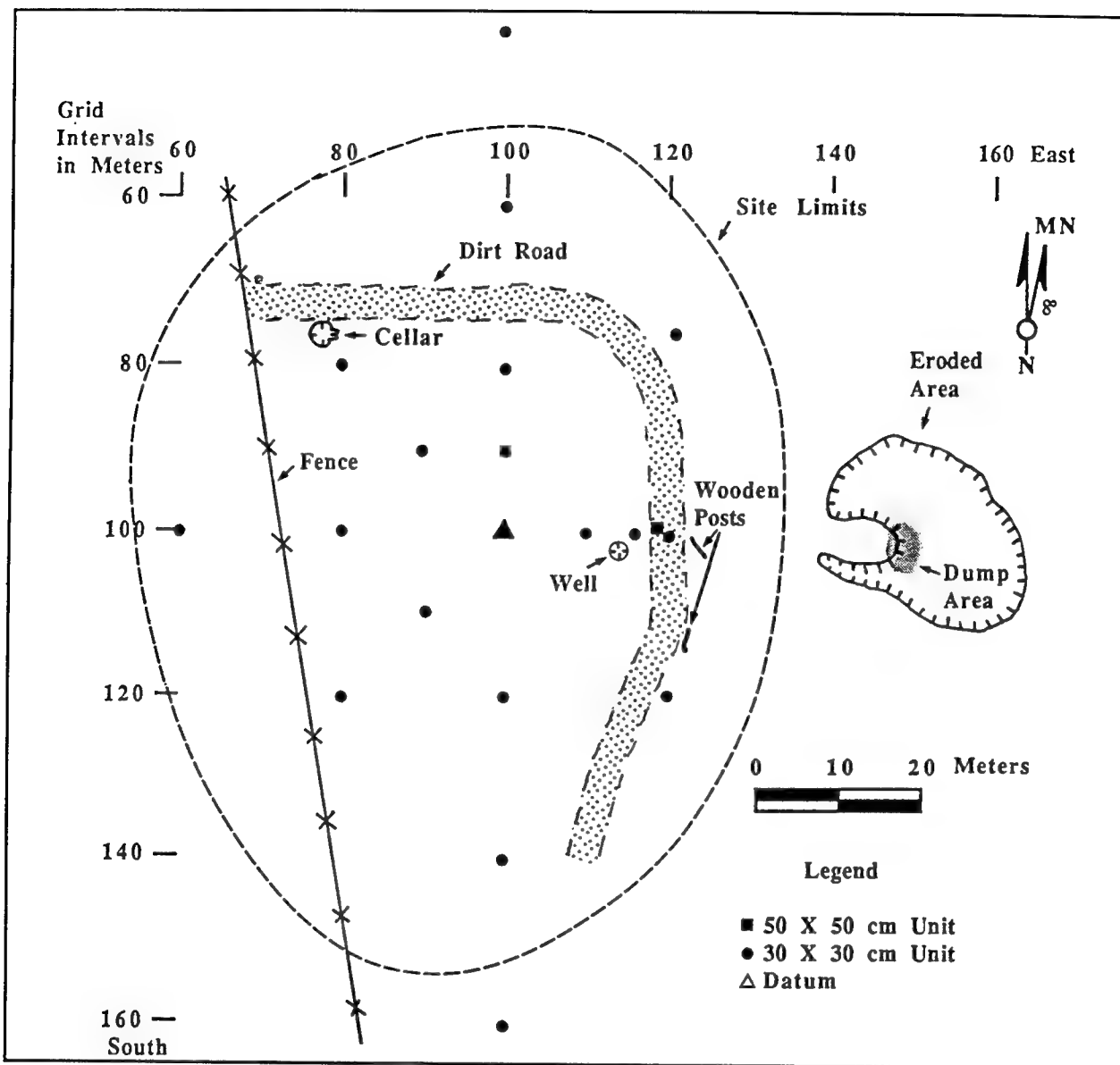


Figure 4-10. Location of excavation units and surface features at site 41DT125.

a definite gap or hiatus was not recovered. At best, the assemblage may be considered to represent a mid-19th century component (ca. 1855) and a late 19th to early 20th century component (ca. 1885-1920+).

A single cultural feature, probably dating to the original Sinclair occupation was noted near the present fence along the farm road. This depression was key-hole shaped with the narrow end facing east, and was concluded to be an early cellar.

Major diagnostic artifacts from the oldest component include a pontiled green historical flask (?) base (ca. 1850-1870), olive green beer bottle sherds, octagonal leaded tumbler base, geometric molded ironstone, a broad

axe (12 in [30.48 cm] blade), cut nails, and early hand formed brick. Artifacts from the later component include asphalt shingle fragments, wire nails, modern ribbed window glass, Bristol-slipped stoneware, Albany-type and natural clay-slipped stonewares, late ironstone, aqua ABM fruit jar, whiteware, and manganese solarized bottle glass. A 10 gauge *US ROMAX* shotgun shell, lead shot, porcelain, a wire staple, and brown and clear bottle glass were also recovered.

Test excavations at this site were stopped after they failed to identify a discrete midden associated with the oldest component.

Post-occupational ranching and erosion due to land modifications have impacted the integrity of the archaeological deposit at 41DT125. Although the artifact proportions are representative of traditional sheet refuse patterns, their spatial association has been altered. For these reasons, no further data recovery is recommended at this time.

41DT135

Site 41DT135 consists of a light scatter of historic artifacts on a low sandy terrace along Doctors Creek. The site is located at the 125 m (410 ft) amsl contour on Annona loam at the edge of the Kaufman clay next to sandy overbank levee deposits. The original presettlement forest consisted of post oak, elm, and other floodplain species. The site is situated near the 1910-1930 crossing from Pecan Grove to Cedar Creek, in the southwest corner of the Thomas Trent Survey (1852). It is thought that this site may be where the Lafayette Wright family relocated after abandoning 41DT113 (see Chapters 11 and 12 for details) and was occupied in the early 1900s.

Twenty-six units were excavated through the main axes of a light surface scatter (Figure 4-11) near a well depression. A small assemblage of 113 artifacts was recovered (see Table 4-1) over a 3500 m² (11,482.9 ft²) area. Diagnostic artifacts generally indicated occupation sometime between 1890-1920. Handmade brick (n = 56) and glass (n = 25) were the most common artifacts recovered. Manganese solarized bottle glass, Albany-like and natural clay-slipped stonewares, panel bottles, handmade brick, an ABM amber panel bottle (ca. 1910-1930), whiteware, clear bottle glass, porcelain, snap case finished bottle glass, and cement that were recovered supported these dates. A 12 gauge shotgun shell marked *WESTERN NEW CHIEF* dating from 1898-1940 was also recovered. Actual occupation may have been as short as 10-15 years since sheet refuse was light and not well defined.

Testing revealed the absence of a well defined yard midden and yardscape. This, plus the dominance of early 20th century artifacts placed this site in a group with low research potential. Also, this was a short-term occupation that none of the local informants could identify, nor were archival records available despite focused research. For these reasons, no further data recovery is recommended at this time.

41DT136

Site 41DT136 is situated on the eastern end of the upland interfluvium between Doctors and Cedar Creeks

overlooking the South Sulphur River bottom. The site is located on Annona loam soil at 131.1 m (430 ft) amsl. Wilson silt loam uplands lie to the west and slope soils lie to the east. The presettlement vegetation consisted of post oak slope forests and post oak/blackjack oak savannahs along the upland prairie. The site is located in the southwest corner of the John Casber Survey (1841). Due to the light density of artifacts and the unsatisfactory recovery of any subsurface features, the function of this site is unclear. It is believed however, that it is probably was not a homesite.

Sixteen test pits (30 x 30 cm [11.8 x 11.8 in]) were excavated at 41DT136 (Figure 4-12), producing 327 artifacts (see Table 4-1) from over a 2800 m² (9186.3 ft²) area. A small surface scatter of artifacts outside the fence along the road and along the western edge of the stock tank were all that remained of the original site. The assemblage from this site is predominantly handmade brick (n = 293), mortar, and cut nails. The artifacts generally date to the turn-of-the-century, from 1890 to 1910-1920. The actual function of the site is not known, and there may even be two components, one dating to about 1890 and the other to about 1920. Several sherds of Bristol-slipped stoneware, a light ivory tinted whiteware, and an ABM small bottle are the only temporally diagnostic artifacts besides architectural remains. The low counts of other artifact categories indicate that an intact sheet refuse deposit is not present at this site.

No further work is recommended due to the age of the artifacts, the failure to uncover any major features, and the disturbances caused by new road construction and the stock tank excavation. Cattle feeding, stabling, and water access have also altered this site and no informants could identify its former occupants.

41DT137

Site 41DT137 is situated at 131.7 m (432 ft) amsl on the eastern edge of the upland between Cedar and Doctors Creeks, 0.8 km (0.5 mi) south of 41DT136 along the road connecting the City Lakes area with Cedar Creek. The dominant soil is the Wilson loam. The presettlement vegetation consisted of upland prairie at the interface of the post oak/blackjack oak savannah. The site is within the easement for the dam construction zone. Site 41DT137 is located in the northwest corner of the R. Scott Survey (1851) in the Cedar Creek community.

Seventeen units were excavated around a well depression at the end of an old farm road paralleling the present road (Figure 4-13). A total of 176 artifacts (see Table 4-1) were recovered over a 1800 m² (5905.5 ft²) area. The small assemblage from 41DT137 contains

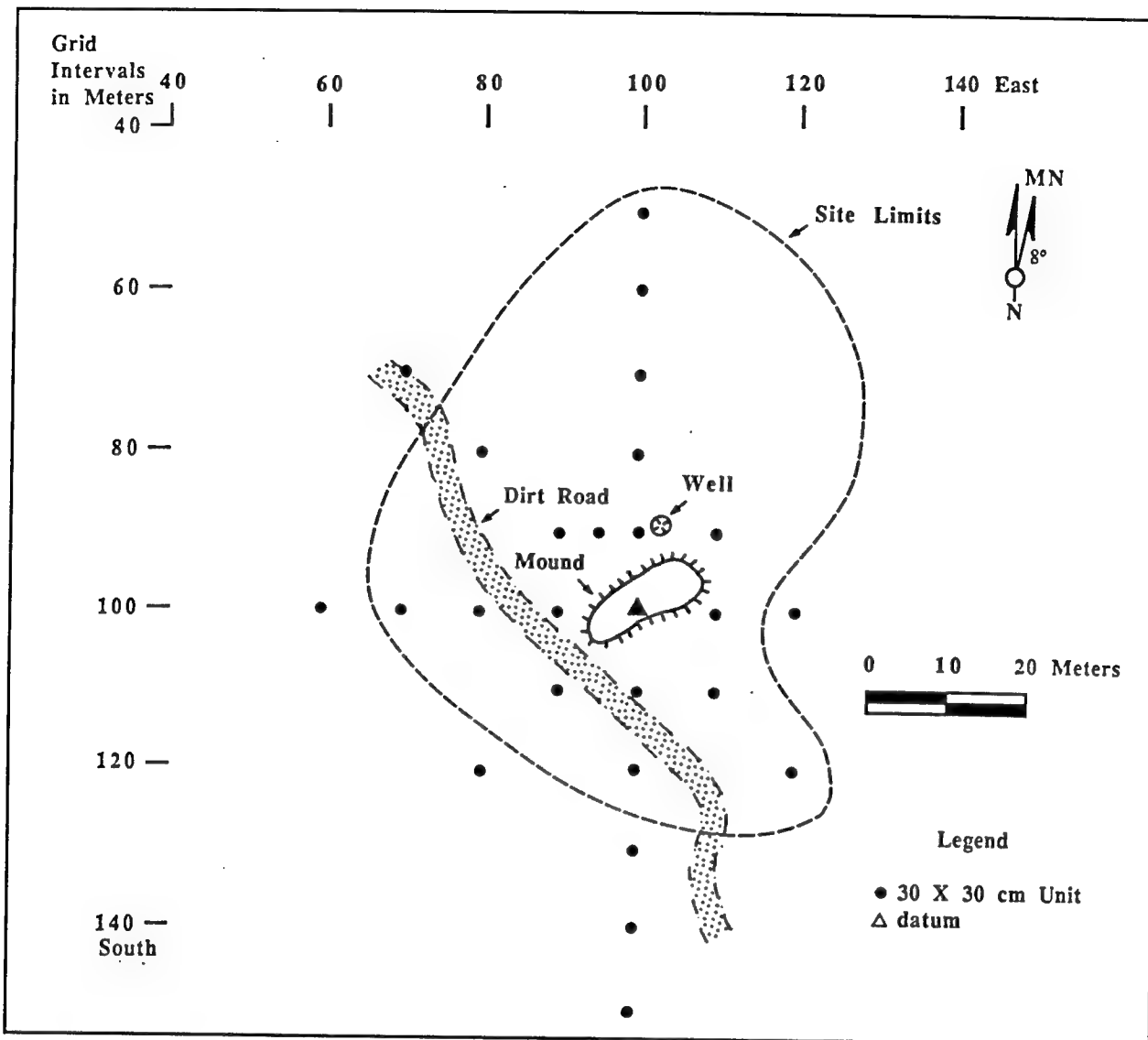


Figure 4-11. Location of excavation units and surface features at site 41DT135.

temporally diagnostic items that date between 1890-1925. Notable items include manganese solarized bottle glass; green, amber, and light green snap case finished bottle glass; handmade brick, window glass, and pressed table glass. The most recent items recovered were a 1910-1930 snuff jar and a pressed white milk glass teacup (ca. 1910-1930).

Once again, occupation probably encompassed a shorter period within these general dates. Since no definable yard midden was identified, investigations stopped. No further work is recommended at this time since no informants could identify who lived at the site.

41DT138

Site 41DT138 is situated along the southern edge of the upland projection between Doctors and Cedar Creeks. It is located at 131.7 m (432 ft) amsl on the interface of the Annona and Crockett loams. The presettlement vegetation consisted of post oak slope forest to the south and a post oak/blackjack oak savannah and upland prairie to the north. The site is located on a remnant of the road connecting the Cedar Creek and Pecan Grove communities.

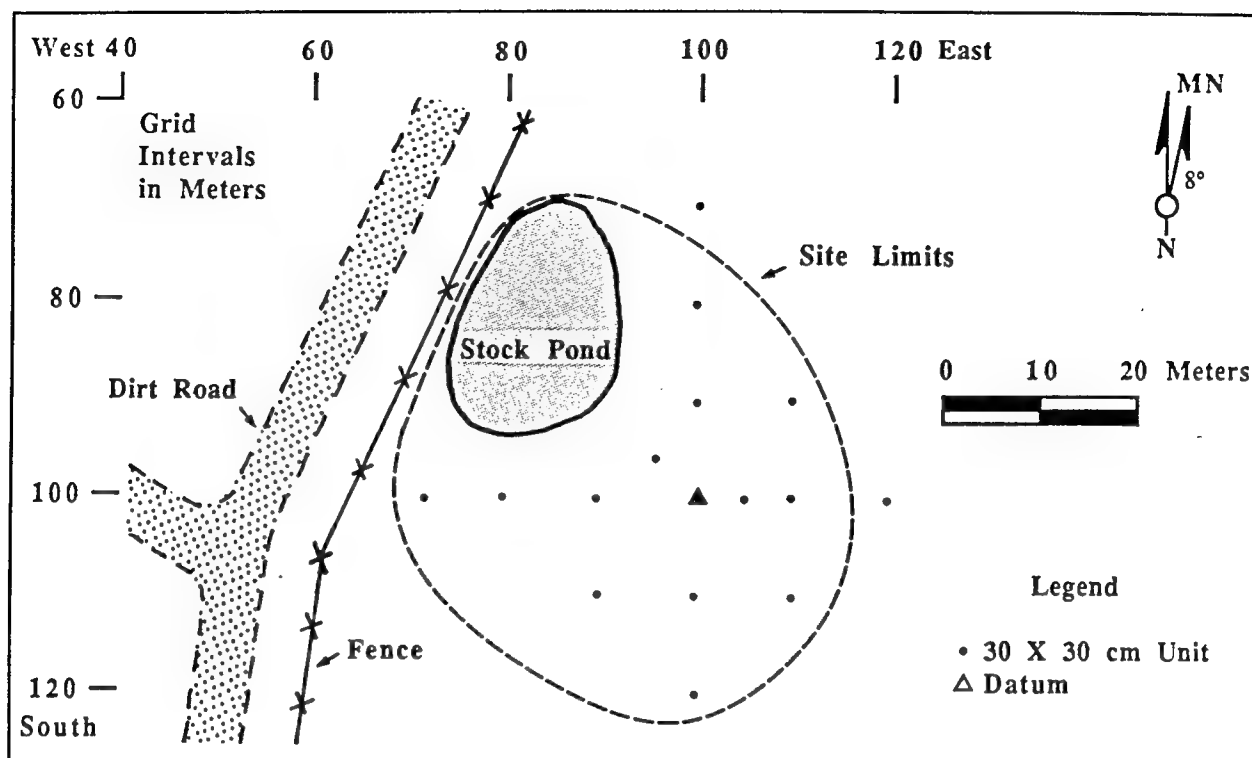


Figure 4-12. Location of excavation units and surface features at site 41DT136.

Informants report that this site was occupied by tenants and was known as the Manly Place during the 1930s-1940s. A scatter of late 19th century and early 20th century artifacts indicated that occupation extended continuously back to at least 1890. A couple of items found within the area of the site indicate possibly a very light, pre-1860 occupation.

Too few artifacts were recovered to isolate this component and propose additional excavations.

The only surface evidence of a tenant farm site was around mounded yard areas (produced by scraping or grading the periphery), a well depression, and a stock tank all associated with the post-1890 occupation (Figure 4-14). Several surface disturbances (upended trees and animal burrowing) were also evident and indicated that some of the subsurface deposit may also be disturbed. Twenty-one units were excavated with the recovery of 387 artifacts over a 6500 m² (21,325.4 ft²) area (see Table 4-1). Brick was the dominant artifact class (n = 225), followed by ceramics (31), nails (29), and glass (n = 25).

The artifact assemblage recovered from 41DT138 consisted of items produced and commonly used in northeastern Texas between 1890-1930. Hand-finished and ABM bottle glass was recovered. Manganese solarized, as well as clear and colored (aqua, brown, amber, etc.), bottle glass fragments were present. The

earliest bottle glass sherd recovered (Unit 2, S115 E85) was a fragment from a hand blown, molded golden yellow historical flask probably manufactured between 1820-1840. This sherd along with a "kaolin" white pipe bowl painted black, from Unit 5 (S85 E100), and a round, weathered translucent bead, from Unit 15 (S100 E85) were the few items indicative of a possible pre-1860 component. Since they were also located in the center of the site, they were quite heavily masked by the post-1880 component of domestic occupation that continued up through the 1930s. Hand-finished snuff (ca. 1880-1900) and machine made with milled design clear snuff bottle glass were recovered from this later occupation.

Ceramics included plain white ironstones (ca. 1840-1920), bluish-tinted ironstone, overglaze decalcomania ironstone/whiteware (ca. 1880-1910), and plain whiteware (ca. 1900-1925). Bristol-slipped stoneware (ca. 1890-1930) was also recovered. Dark natural clay interior and Bristol-slipped exterior stoneware, and some late salt vapor stoneware (ca. 1855-70) were also recovered.

One prehistoric sherd was recovered from site 41DT138. The sherd, from Unit 20, level 3, was a base tempered with grog. It is a flat jar or bowl base, 14.5 mm thick, probably Williams Plain. The specimen is pitted on the interior and has the appearance of being refired, perhaps accidentally by the historic period occupation.

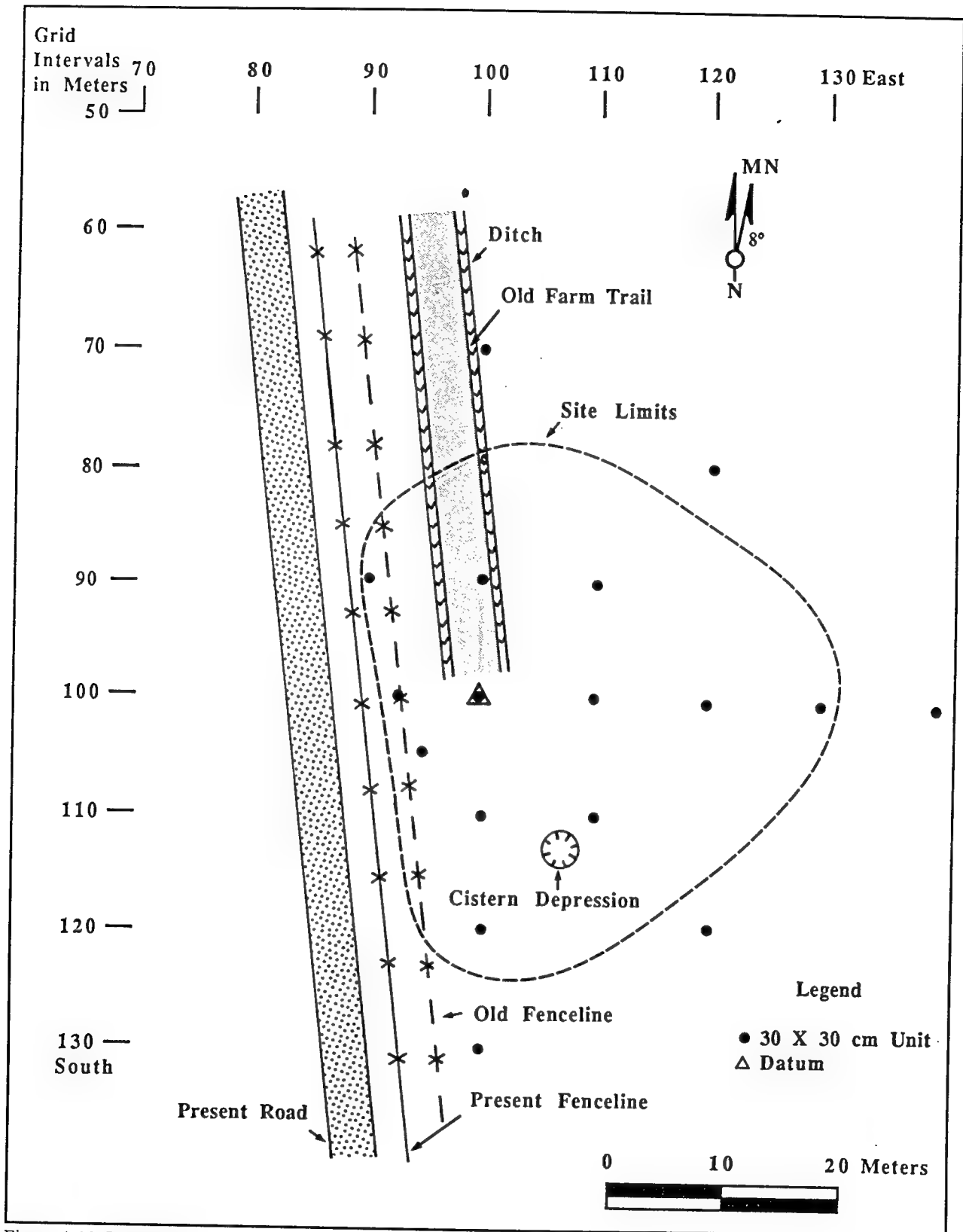


Figure 4-13. Location of excavation units and surface features at site 41DT137.

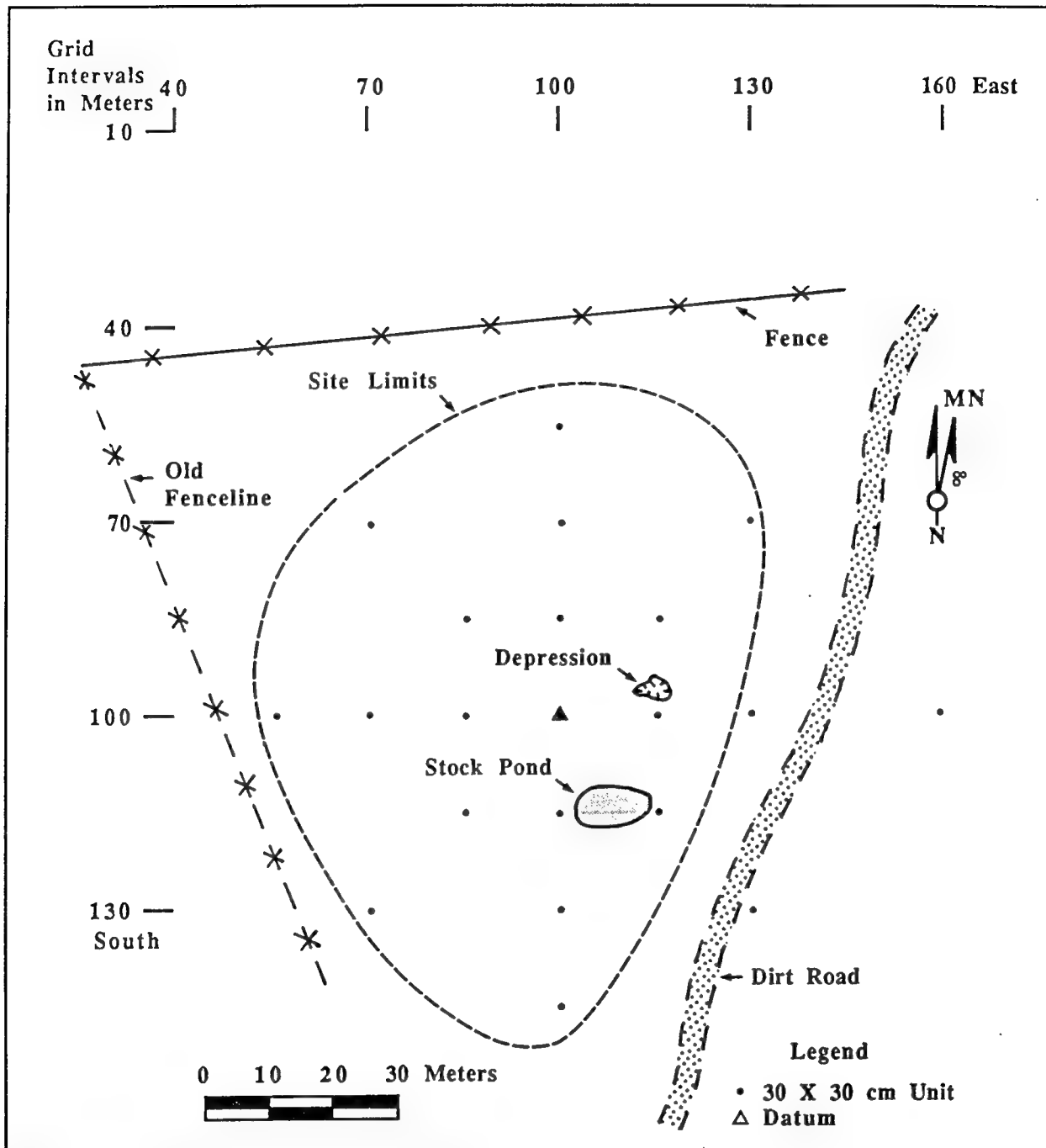


Figure 4-14. Location of excavation units and surface features at site 41DT138.

Architectural items included handmade and machine pressed brick: some of the earliest brick showed "glazing." Soft mortar (pre-1900), cut and wire nails, and thin window glass indicated mostly late 19th century building episodes. Only four pieces of window glass yielding a mean thickness of 1.825 mm were recovered.

Last of all, egg shell, an animal phalange, and a .22 caliber rim fire rifle cartridge were also recovered.

The apparently mixed and broad temporal range of artifacts recovered from this site reduces its value to address the questions outlined in the research design. Also, since a definable midden related to the earliest

component was not defined, disturbances abounded, and occupation continued well into the 20th century, further investigations are not recommended at this time.

41DT139

Site 41DT139, more accurately defined as a locality, is situated at 123.5 m (405 ft) amsl on a lower slope that projects onto the floodplain of Doctors Creek. The dominant soil type is the Annona loam. The presettlement forest consisted of post oak, elm, and other floodplain species. The site is located just north of a previously recorded prehistoric site, 41DT83 (see Chapter 3 for details) along a remnant of the old Pecan Grove to Cedar Creek Road. Informants and archival research produced no information about the previous occupants of this site.

Testing was scheduled for this locality after four 19th century tableware items were noted on the surface during reconnaissance. These surface occurrences were believed to be the result of animal burrowing. These artifacts consisted of two manganese solarized ribbed or pressed glass tumbler sherds, a manganese solarized round fruit jar base, a clear bottle glass sherd, and a bluish-tinted ironstone sherd. They all represented a period between 1880-1910 with the exception of the ironstone which could date a little earlier, but no later. The prime location of the site and the low density of artifacts indicated a possible short-term occupation and testing was recommended.

Seventeen units were dug and only 12 artifacts (see Table 4-1) from a 4500 m² (14,763.7 ft²) area were found. Artifacts were recovered from only one unit (S100 E100) and consisted of a single wire nail and several pieces of charcoal. No definable midden or continuous artifact scatter was encountered. Excavations were halted when overwhelming evidence indicated no intact, subsurface deposits. The few items were recovered in a 1200 m² (3937 ft²) area and probably represent random discard of some domestic trash around the turn-of-the-century (Figure 4-15).

When the site was first encountered, the location of 41DT139 looked very promising for a short-term, late 19th century homestead. Unfortunately, the physical evidence recovered did not substantiate this possibility. The lack of sheet refuse or identifiable features, and the evidence of only turn-of-the-century material indicate that further collections or excavations are unnecessary.

41DT140

Site 41DT140 is situated on a low residual knoll on the north bank of a backwater channel in the South

Sulphur floodplain. Located at the 124.1 m (407 ft) amsl contour, the Kaufman clay is the dominant soil type. The presettlement forest consisted mainly of flood tolerant tree species. Today the site is covered by a second growth forest. The site is located in the Pecan Grove community on a branch of the early road between Cedar Creek and Pecan Grove.

Two distinct functional areas, the house and barn, were noted. The S100 E100 datum stake was placed in the center of the barn area. An open brick-lined cistern, mounded area, two shallow depressions, and two pressed brick concentrations made up the surface features of the house area (Figure 4-16). A few posts along the north and west edges of the site indicated an old fenceline probably delineating the yard boundaries. Remnants of the old graded road through the site (north-south) are still evident. Six posts crossing the backwater channel (mentioned above) located south of the site may have been part of a small bridge used during flooding episodes. No other features were noted on or near 41DT140.

A total of 17 units were excavated over a 3500 m² (11,482.9 ft²) area. Intact sheet refuse was present with glass (n = 53), nails (n = 34), and ceramics (n = 4) comprising a large part of the assemblage (see Table 4-1). The assemblage recovered from this site yielded a representative collection of early to mid-20th century domestic items (ca. 1910-1950). Architectural items consisted of machine pressed brick, wire nails, and soft mortar. Twelve sherds of window glass yielded a mean pane thickness of 2.26 mm and a formulated construction date of 1903 for the dwelling (estimated to be about 7 years too early). This is one of the few sites occupied before 1920 that yielded no fragments of hand formed brick. Bottle glass included clear, cobalt blue, brown, amber, milk glass, and aqua. Bottle glass types included fruit jar, snuff, liquor, and cosmetic dating between 1910 and 1950. Ceramic sherds represented light ivory tinted whitewares, pure white whitewares, and Bristol-slipped stoneware. Finally, fourteen pieces of soft coal were recovered along with melted bottle glass. All of these items indicated a domestic occupation between 1910-1945. A large mill stone fragment was also recorded in association with the southernmost brick concentration. Also noted was a large gray and white enamel covered stove with an identification tag stating *Wrought Iron Range No. — AE St. Louis Mo.* near the mounded area.

Intact early 20th century sheet refuse and architectural features were present at site 41DT140. Although portions of the original farmscape still existed, the occupation lasted up to 1950, producing a heavy veneer of recent deposits. Therefore, further data recovery is not recommended at this site.

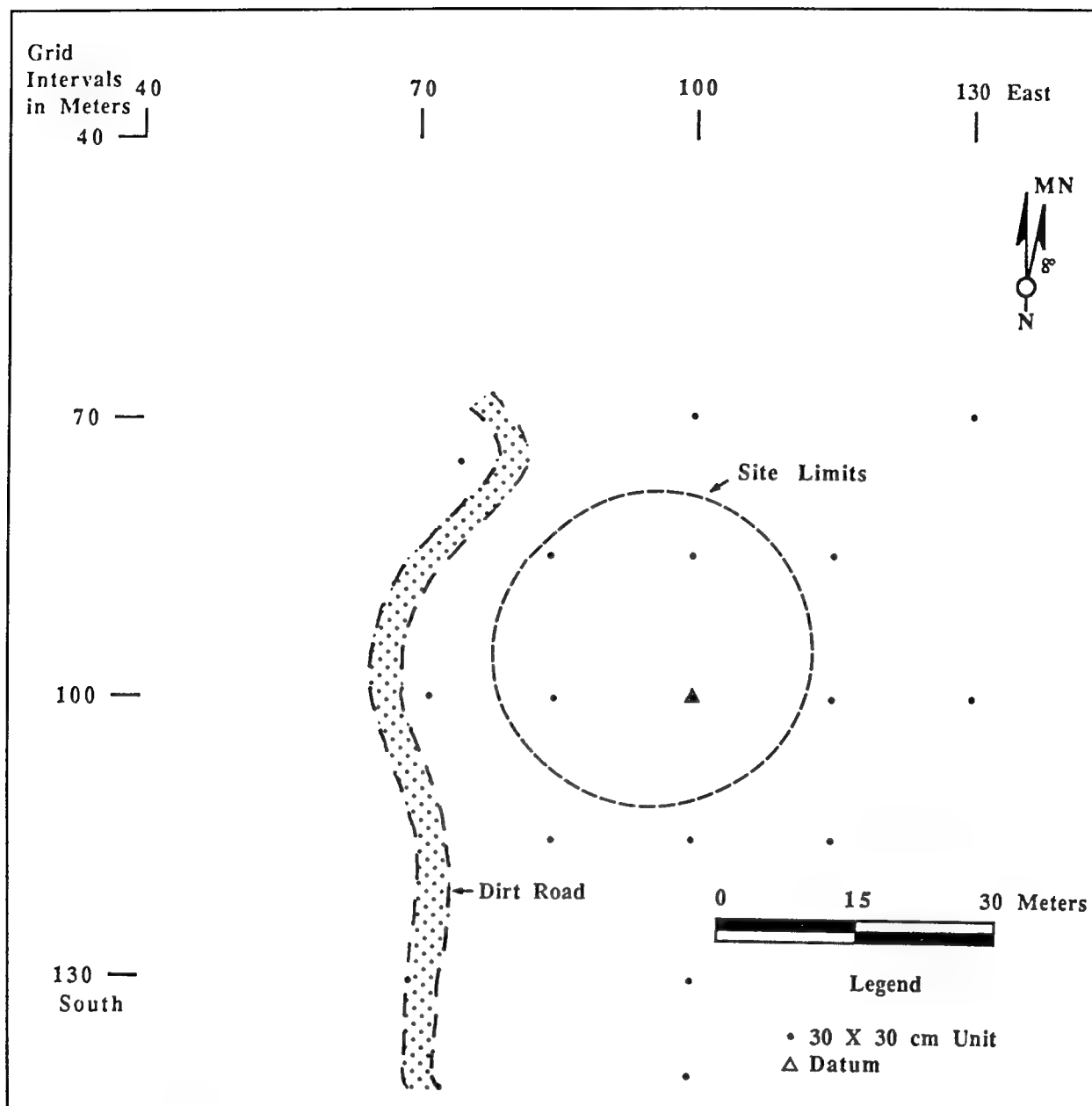


Figure 4-15. Location of excavation units at site 41DT139.

HOPKINS COUNTY SITES

41HP105: The Cox Site

The Cox Site, 41HP105, is located on a broad low rise (405 ft amsl) within the floodplain on the south side of the South Sulphur River. It is also located about 440 m (1443.6 ft) east-northeast of the confluence of Moore

Creek and the South Sulphur, and about 870 m (2854.3 ft) east-northeast of the old Harper's Crossing on the South Sulphur River. The site is located on Gladewater clay, a clayey alluvial soil found in the bottomlands.

The site was first recorded in 1970 by a SMU survey crew because of its large prehistoric component (Hyatt and Skinner 1971). The prehistoric component was re-examined by SMU archaeologists during this recent survey and those investigations are reported in Chapter 3

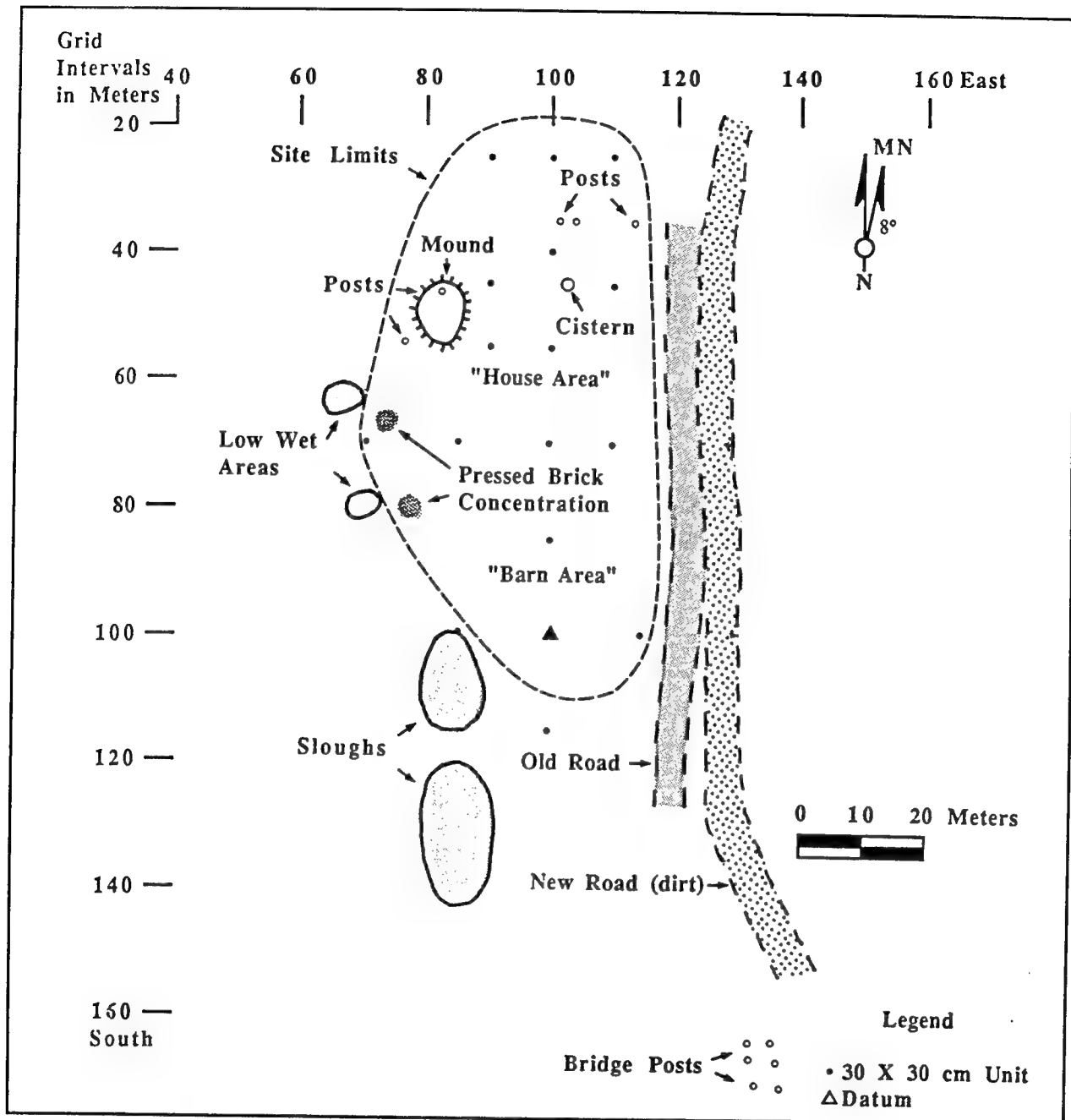


Figure 4-16. Location of excavation units and surface features at site 41DT140.

of this volume. The historic material recovered in 1970 was attributed to dumping activities that were noted but more or less disregarded from further work.

A re-examination of the historic material recovered in 1987, indicated that they were more likely the remains of a late 19th century occupation rather than the results of 20th century dumping. The historic component appeared to be very short in duration with a small outbuilding associated on the western side. The 1987 investigations

concentrated on this activity area on the western side of the site. Its location along a slough, the presence of a large iron cog on the slough bank, and the absence of large numbers of "domestic" artifacts from excavations pointed to possible sawing or milling activities.

Sixteen units were dug along the slough edge (Figure 4-17) to determine the actual function of this outbuilding. A total of 555 artifacts were recovered with handmade bricks ($n = 545$) comprising the majority (see Table 4-1).

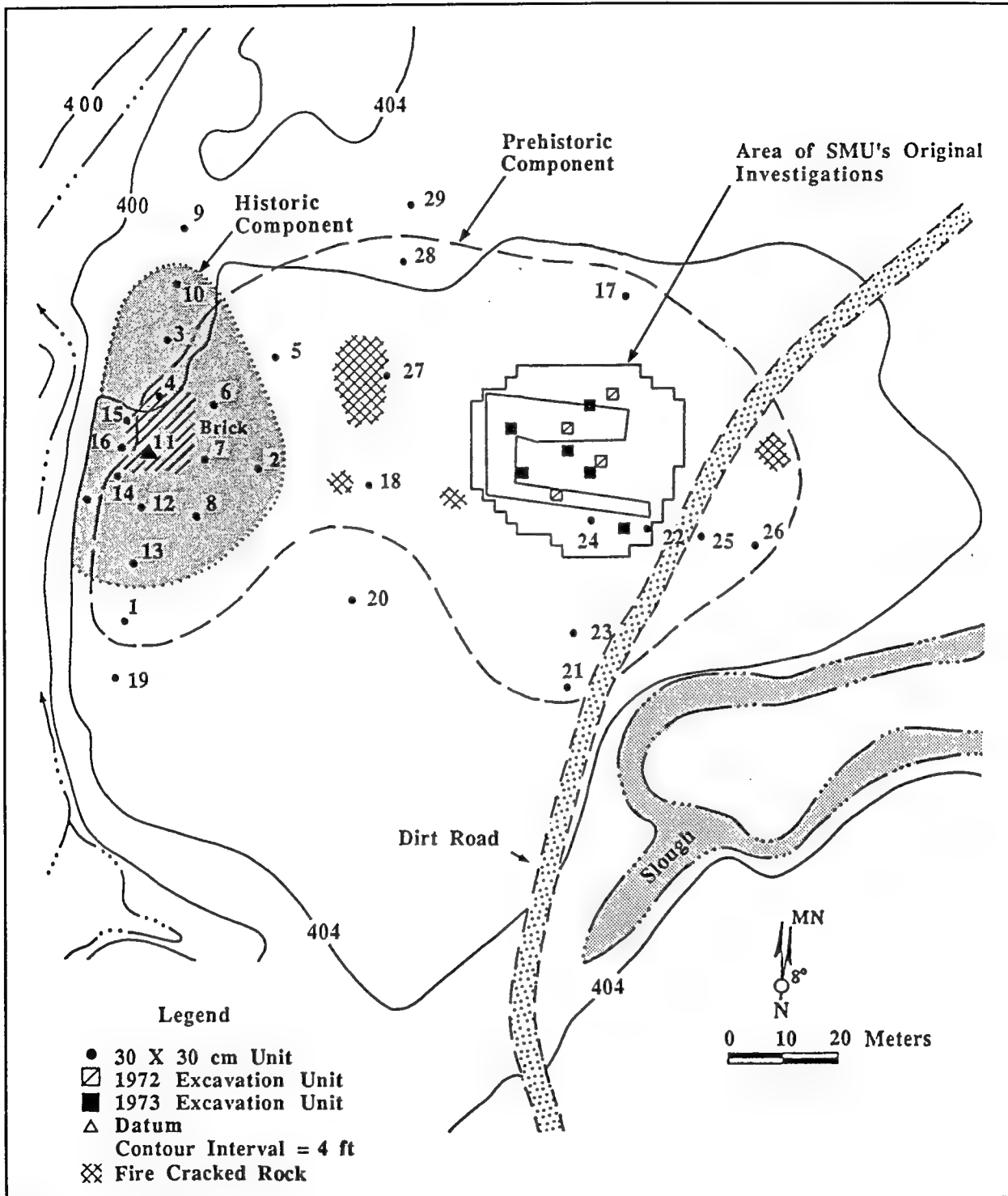


Figure 4-17. Location of excavation units and surface features at site 41HP105.

Three dark natural clay-slipped stoneware crock or jug sherds (ca. 1880-1910), two pieces of clear bottle glass, a manganese solarized bottle sherd, a clear scored or

burnished bottle sherd, ironstone whiteware, a bluish-tinted ironstone cup, a window glazing point, iron, cast iron, and the large cog found on the slough bank made up

the remainder of the assemblage. Prehistoric materials, mostly lithics, were recovered from nearly all of the units.

Contained in the larger assemblage of historic materials collected from the 1970 fieldwork were hand-finished bottle glass (i.e., snuff, beverage, and liquor ?), cut and wire nails, a jean snap, a pressed iron spoon handle, machine bolts, ironstone/whiteware sherds, bluish-tinted ironstone, tin can fragments, cast iron and iron fragments, and a *UMC CO. 12 GA. CLUB* shotgun shell. The narrow range of domestic items coupled with the machine bolts and broad scatter of brick support a non-domestic association for this occupation. A steam operated sawmill set is the most likely candidate for this site. Artifacts suggest that these activities took place some time between 1885 and 1895.

Although this site is recognized as an important representative example of sawmill activity common along major drainages, additional investigations were stopped once its age and function were defined. More extensive data recovery is not recommended.

41HP141

Site 41HP141 is situated at the terminus of an upland ridge on the escarpment south of the South Sulphur River valley. The site is located on Woodtell loam at the 141.8 m (465 ft) amsl contour. The presettlement vegetation was a post oak savannah at the point of a long, narrow upland prairie. This site is located in the W. W. Langham Survey (1846), on a tract purchased from David Dowdle by W. W. Weir in 1895. A prehistoric component, mostly lithic debris, was encountered on the western side of the site.

Evidence of a fallen outbuilding was recorded on the southwestern edge of the site near the fence. Also recorded was a large iron hay ring near the center of the site. Both of these are attributed to the recent livestock pasturing.

Twenty test units were excavated over a 4200 m² (13,779.5 ft²) area (Figure 4-18). The artifact assemblage consisted of 237 items (see Table 4-1). Miscellaneous metal (n = 103), glass (n = 47), and ceramics (n = 20) were the most abundant sheet refuse items. The assemblage contained Bristol-slipped and natural clay-slipped stonewares, whitewares, ivory tinted whitewares, late ironstone/whitewares, and porcelain. A single natural clay slipped stoneware canning jar (wax seal type) sherd was recovered from the surface of the east edge of the eroding driveway. A Japanese porcelain vessel was also identified. Bottle glass consisted of hand-finished and machine made bottle glass dating 1890-1920. Aqua fruit jars with several milk glass inset caps for home canning

were also present. Tin can fragments were also recovered. Wire nails, handmade brick, and iron machine parts were present. Clear snuff jar (milled variety), pressed clear table or drinking glass, and aqua, manganese solarized, emerald green (1890 -1915), and brown bottle glass were present. The items generally dated between 1890-1920, and a moderate yard midden was encountered.

The turn-of-the-century association made this site one of many identified in the embankment area. Further investigations of this site were not pursued due to the site being removed from Federal land, and hence out of the project. Consequently, no further work is recommended.

41HP144

This multicomponent site is located north of an old county road, about 1.2 km (0.75 mi) south southeast of Hurricane Hill and about 2.25 km (1.4 mi) west of Highway 19/154. It is situated on top of an upland ridge (Figure 4-19), about 250 m (820.2 ft) northeast of a small, intermittent stream flowing northwest to the South Sulphur River. A structure was shown in this same location on a 1941 county road map and on the 1964 USGS quad map. The soil association for the top of the ridge is Woodtell Loam (Lane 1977) and the site occurs at an elevation of ca. 136-137 m (446-448 ft) amsl. The site area was covered with short grass and clover. Scattered trees included locust, mesquite, and oak.

The historic component at 41HP144 consists of a scatter of historic material associated with several structural features; several fencelines designating pens and yards, some fruit trees; ornamental yucca plants presumably associated with the former house location, a well, and several depressions of an unknown nature. These historic remains cover ca. 6000 m² (ca. 80 m [262.5 ft] north-south x 75 m [246.1 ft] east-west). The artifacts generally date to the second quarter of the 20th century and include whiteware, bottle and table glass, manganese solarized glass, slate, Bristol stoneware, and milk glass. A large number of artifacts were found in the road south of the site, as well from ca. 25 m (82 ft) west of the driveway to about 20 m (65.6 ft) to the east. This material also appeared to date to the 20th century, although very early, and included lots of whiteware, particularly the "hotel" ware. A secondary, and prehistoric, component was indicated by the presence of two Ogallala quartzite flakes and a biface tip on the surface in the southern portion of the site.

This site has been extensively altered by road grading and road erosion, and the recent age of most items further detracted from its value for archaeological study. Also, since the upland ridge was deflated, the

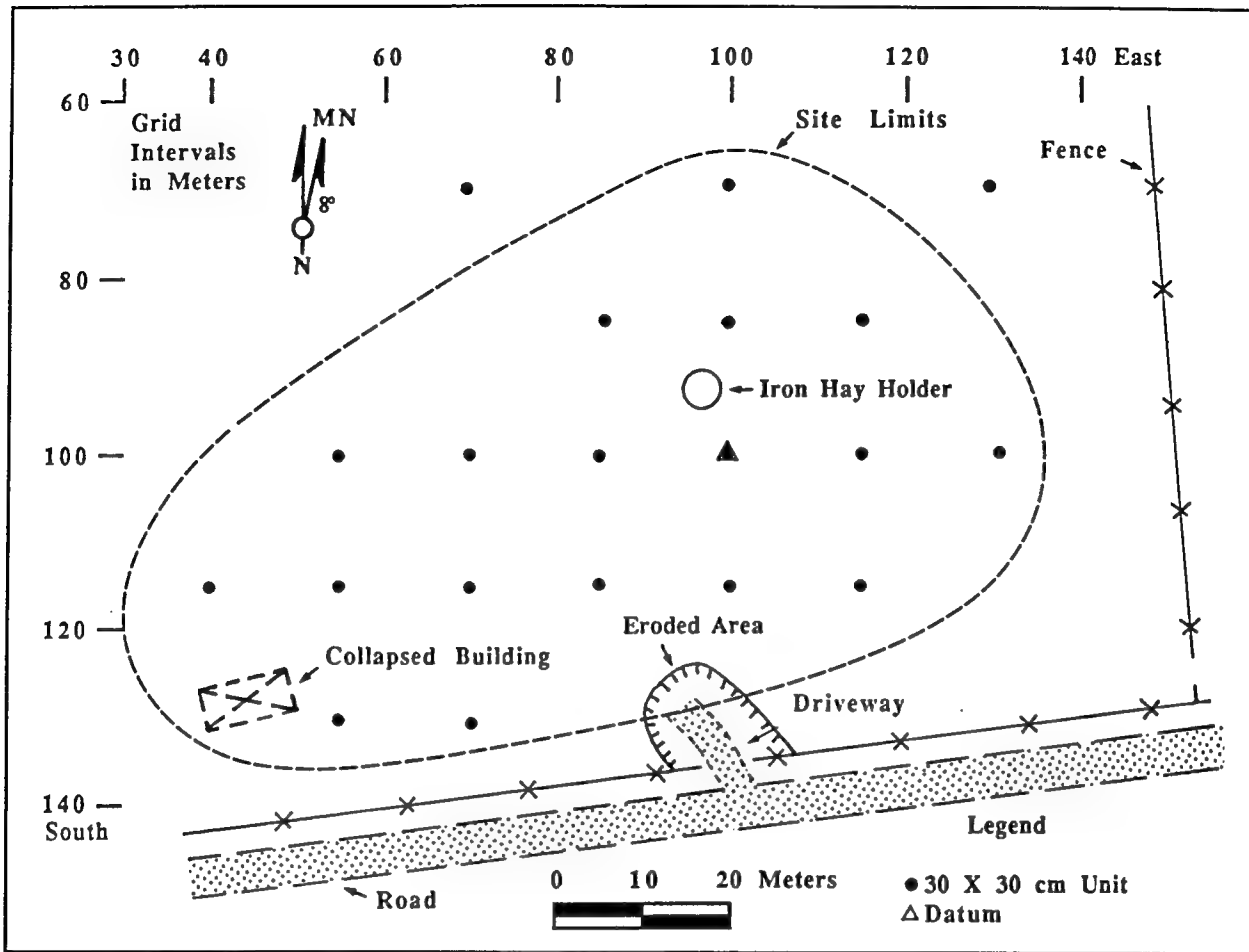


Figure 4-18. Location of excavation units and surface features at site 41HP141.

distribution of the sparse prehistoric materials could be determined by surface reconnaissance. No additional work is recommended.

41HP145

Site 41HP145 is situated at the point of an upland projection of the escarpment south of the South Sulphur River valley. The site is located at the 134.2 m (440 ft) amsl contour on a Woodtoll loam soil. The presettlement vegetation was a post oak forest with a long, linear prairie to the east. Site 41HP145 is on a tract located in the W. W. Langham Survey which was purchased by Spive Marlow and Lawson Robertson in 1898.

An extensive artifact scatter dating from the early 1900s to the 1930s was located along the old farm road through the site. A prehistoric component was also encountered and may actually be part of site 41HP147 which borders 41HP145. The excavation details of this component and site 41HP147 are presented in Chapter 3.

Several features were also noted: a dry stock tank, fencelines delineating the yard area, a recent trash scatter along the erosional gully, an abandoned piece of farm machinery, a dump of fruit jar fragments, a small mound in the yard, and a few handmade bricks clustered near the datum (Figure 4-20). Remains of a late tenant house (dating to the 1960s-1970s) was also recorded just south of the site.

Nineteen units were excavated over a 3500 m² (11,482.9 ft²) area (Figure 4-20). The artifact assemblage consisted of 487 items (see Table 4-1). Metal items from fencing, barbed wire, and tin cans/sheet metal comprised over 250 artifacts. Glass (n = 79) and ceramics (n = 23) also were frequent items recovered from sheet refuse contexts. Surface collections and excavations yielded a diverse assemblage that was similar in composition to other historic sites. Several "status" items were recovered and included a blue cut glass leaded pendant (possibly lamp), a gold plated *Misses* (sweetheart) ring with an engraved *I* in a heart, a stoneware gaming token, and a

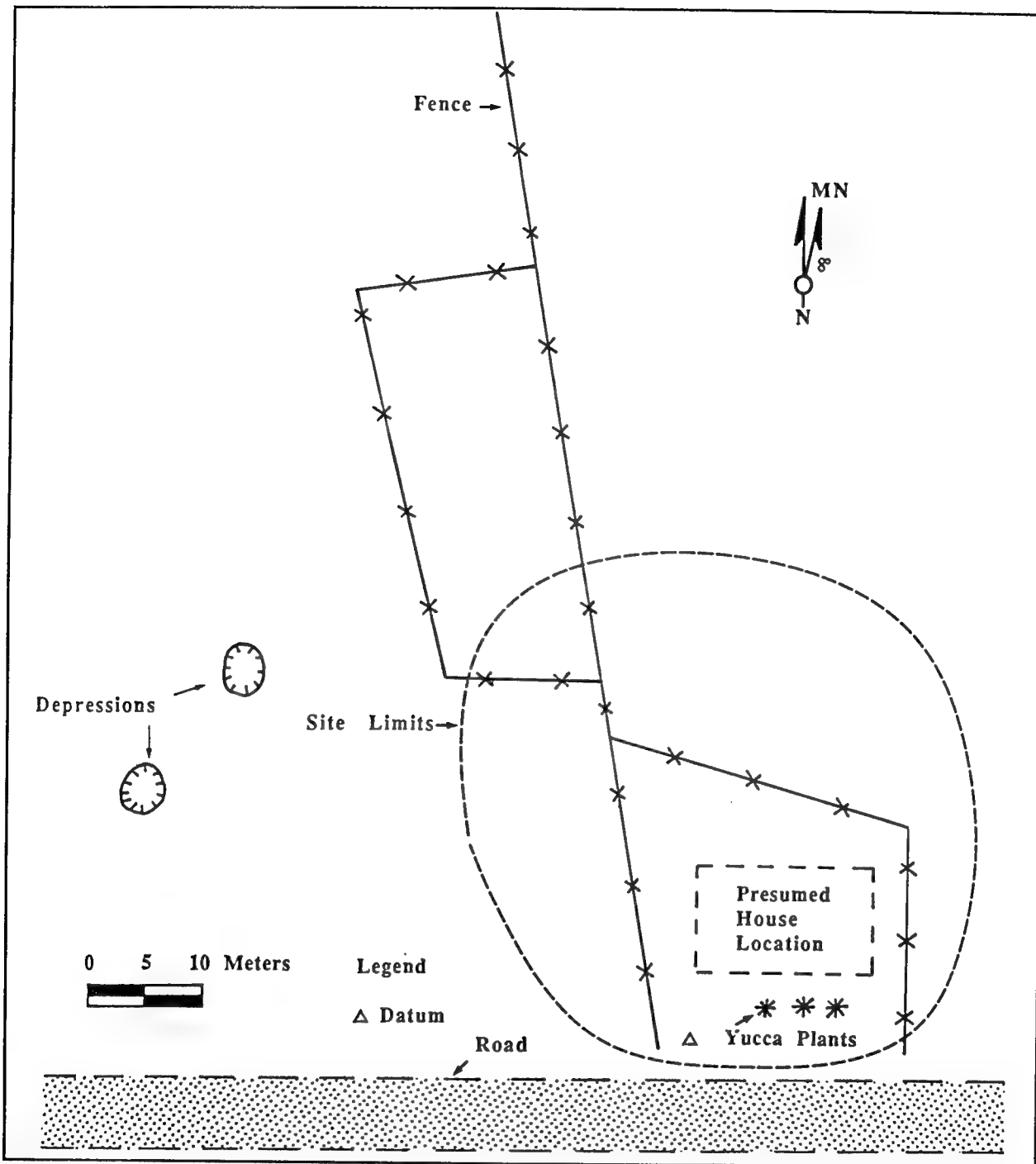


Figure 4-19. Location of excavation units and surface features at site 41HP144.

thin fragment of overglaze finely-enameled polychrome porcelain. A wide variety of bottle glass was represented and included aqua, clear, and light green soda, aqua fruit jar, manganese solarized, clear, and light green beverage, clear and brown snuff, and food and medicinal/cosmetic vessels. Both late hand-finished and ABM bottles are well

represented. Most vessels seem to date from ca. 1895 to 1935-1940. Table glass vessels (clear plain and pressed tumblers, pink Depression glass, and manganese solarized sherds) also were well represented. Milk glass fruit jar inset cap sherds and a clear continuous threaded fruit jar rim with a bead seal were recovered.

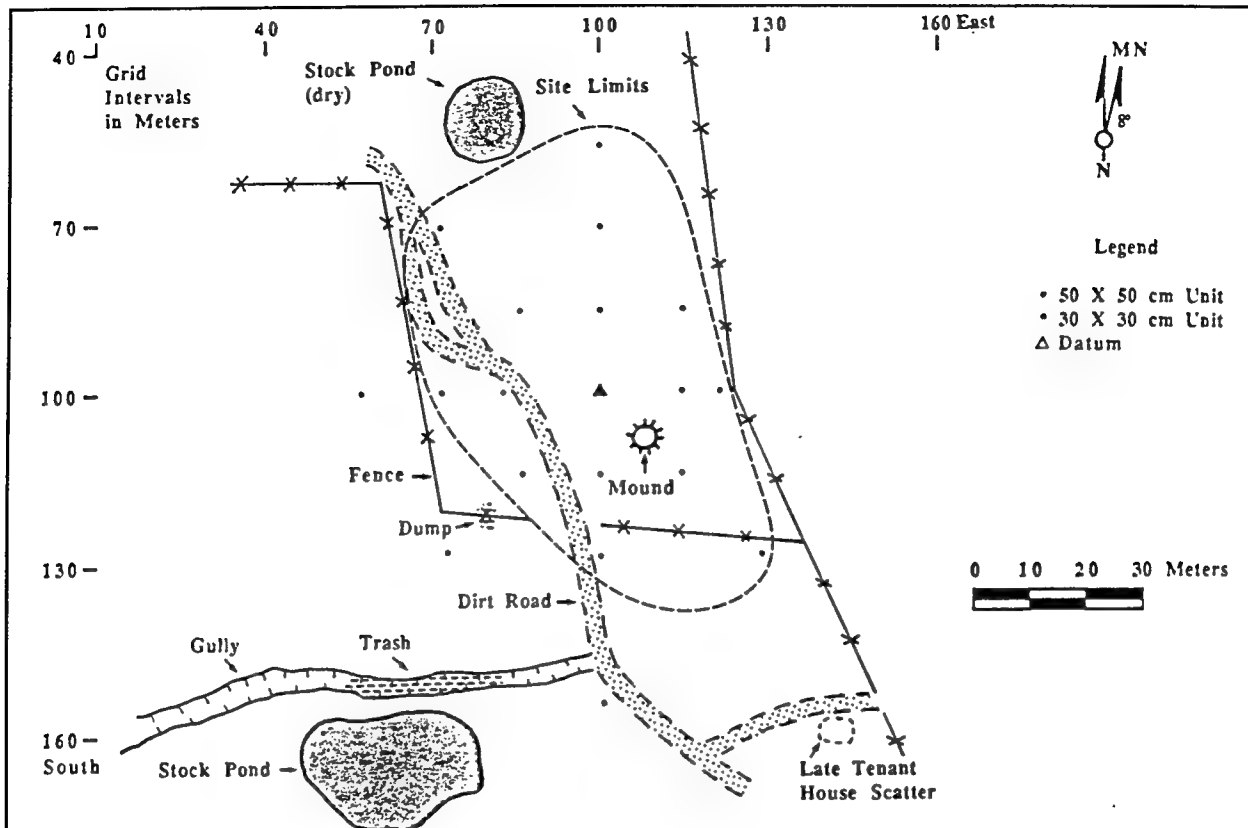


Figure 4-20. Location of excavation units and surface features at site 41HP145.

Ceramic sherds represented fine tablewares, yellowware kitchen wares, and storage stonewares. Whiteware and very late ironstones were present. Two makers marks were recovered: *Alfred Meakin, Tunstall England* (Godden 1964:425 variant of mark #2584; ca. 1891-ca. 1907), and *the West End Pottery, East Liverpool, Ohio* (Lehner 1980:166; ca. 1910-1934). The fragment of a yellowware mixing bowl (ca. 1920-1940) was also recovered. Stoneware sherds include Bristol-slipped and natural clay-slipped vessels from the turn-of-the-century. Architectural items include handmade brick, wire nails, and window glass.

A single feature was encountered in Unit 19 (S100 E123) at the eastern edge of the property. The original 30 x 30 cm (11.8 x 11.8 in) unit was expanded to a 50 x 50 cm (19.7 x 19.7 in) unit to better identify the stain. It was characterized by burned soil along the boundary and abundant charcoal and ash within the rectangular shaped feature. Approximately 125 artifacts were recovered from Unit 19 to a depth of 25 cm (9.8 in). This feature was the result of a fence post or tree burning. The remains of a decayed men's boot consisting of a iron heel plate, heel and sole nails, and a lace hook were recovered from this Unit (S100 E123). Three iron jean snaps/rivets were also

recovered here. These items indicate domestic activities from the beginning of this century up to ca. 1935-1940. No other substantial subsurface feature was located.

Similar turn-of-the-century domestic sites identified elsewhere in the Cooper Lake Project area and only those of National Register eligibility and meeting specific research potential as outlined in the research design need further investigations. For 41HP145 no data recovery is recommended due to its heavy 20th century component.

41HP146

Site 41HP146 is situated on an upland projection of an escarpment on the south side of the South Sulphur River valley. The site is located on Bazette clay loam at the 137.2 m (450 ft) amsl contour. The presettlement vegetation was a post oak upland forest. The site is located in the Ulysses Aiguier Survey (1838), north and west of the Aiguier Cemetery. Informants could provide no information on the previous tenant occupants. A number of surface features were evident and archaeological integrity appeared to be intact.

Abandoned farm machinery is scattered across the area. There is good evidence for structural foundations

including wooden and stone piers, an intact chimney base and chimney fall, a cellar depression, and a brick-lined well which delineate the original farmscape. A smaller depression and mounded area on the north side of the site complete the major surface features noted.

A total of 31 units were excavated over a 6000 m² (19,685 ft²) core area of the site (Figure 4-21). A total of 353 items was recovered (see Table 4-1). Dominant sheet refuse items included vessel glass (n = 151) and ceramics (n = 16). The assemblage contains a wide assortment of domestic artifacts including fragments of bottle glass, table glass, and ceramic wares. Temporally diagnostic items indicate heavy 1890-1940 occupation with an additional lighter occupation in either direction of at least 5-10 years. Bottle glass consisted of hand-finished, snap case manufactured late 19th century bottles; ABM manufactured bottles with cork closures (ca. 1910-1940), and a few later bottle types. A complete *Mrs. Stewart's Bluing* bottle marked with an Owens Illinois triangle and *Duraglass* (in script) dating to 1940-1954 was surface collected. Cobalt blue, aqua, light green, brown, clear, and manganese solarized hand-finished and machine finished bottle sherds were present. Brown and clear (milled design tumbler style) snuff bottles were recovered. An ABM aqua fruit jar with a continuous thread lip (ca. 1910-1930) was also present.

The ceramic assemblage included stonewares and refined earthenwares. Ironstone, whiteware, and light ivory tinted fine tablewares were represented. Stonewares included Bristol-slipped, natural clay interior and exterior slipped, and light salt vapor exterior glazed with natural clay interior slipped vessel fragments.

Table glass was also recovered and consisted of early 20th century varieties as well as older late 19th century types. Cobalt blue table glass and Depression type pressed milk glass vessels were evident. Other items recovered included tin can fragments, a zinc fruit jar cap, several jean snaps/rivets including one stamped *Bell Brand*, and several iron machine parts. An aluminum dish (possibly soap), handmade brick, cut and wire nails, soft mortar, a pig's tusk, and a harness buckle were also found. Finally, the assemblage also contained a white porcelain four-hole button, window glass, and a nut and bolt.

Although the site yielded a wide range of artifacts, the recent and heavy 20th century component overshadows its research value. Also nothing is particularly notable about its occupants. Therefore, no further fieldwork is recommended at this time.

41HP151

Site 41HP151 is part of a larger historic farmstead complex which also includes sites 41HP152E (East) and 41HP152W (West). Site 41HP151 is situated at the base of the escarpment south of the South Sulphur River below what is known as Harper's Hill. The elevation is 128.1 m (420 ft) amsl and the soil type is Bazette clay loam. A post oak bottomland forest was the dominant vegetation type in the presettlement period. Informants reported that tenants occupied 41HP151 as early as 1910 until approximately 1925. Artifacts recovered also indicated several other occupational episodes in addition to this one. Also, the dwelling had electricity install prior to final abandonment.

Twelve units were excavated (Figure 4-22) yielding 185 artifacts (see Table 4-1) from over a 1000 m² (3280.8 ft²) area. A stock tank and/or pits for the extraction of clay for brick making extend over a 3500 m² (11,482.9 ft²) area around the brick-lined well. Brick (n = 110) was the most common artifact type. Nails and barbed wire (n = 37) related to fencing indicate that it has been used for livestock activities in the recent past.

Fine ceramic sherds included a marked piece of bluish-tinted ironstone from *A. J. Wilkinson Ltd./England* which dates between 1896-1910 (Godden 1964:672 mark #4169). Sherds of blue transfer printed whiteware, porcelain, and a natural clay-slipped stoneware were the only other ceramic vessel fragments recovered. Handmade brick, wire nails, wood screws, iron strapping, and window glass were also recovered. A piece of lead shot (ca. 7 mm diameter) and a fragment of red plastic were the only other major items excavated. Overall, artifact densities were very light and mainly reflected occupation around the turn-of-the-century. There were some items that dated both considerably earlier (pre-1865) and later (post-1940). No further work was recommended at this time because of the wide temporal span represented by several unrelated uses of the general site area. The close proximity of 41HP152E and 41HP152W underscore the amount of activity that has taken place on this knoll since the 1850s.

This site may have served a special purpose in addition to having been a tenant homestead. Water was provided by a well for livestock and earlier occupants. A corral and barn were probably present at one time. Clay apparently was excavated and possibly fired nearby indicating possible brick making. Due to the low number

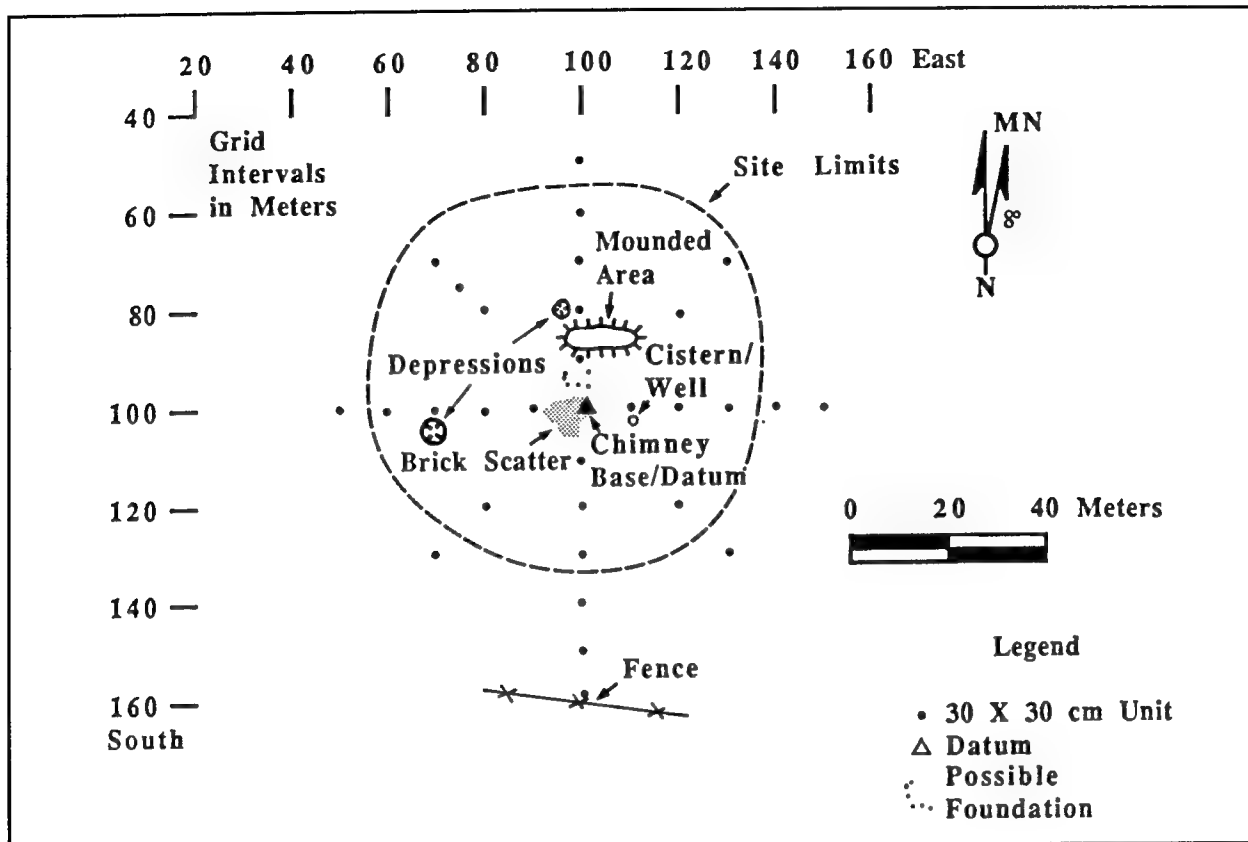


Figure 4-21. Location of excavation units and surface features at site 41HP146.

of domestic artifacts and the low potential to answer the research questions of the research design, no further data recovery is recommended at this time.

41HP152E

Site 41HP152E is located on an upland projection of the escarpment called Harper's Hill south of the South Sulphur River valley. The entire Harper's Hill (41HP152) was divided into East and West since there were multiple households identified by maps and archaeological remains. Also, there appeared to be some chronological separation between East (recent) and West (old). Site 41HP152E is located on the broader part of the hill at an elevation of 143.3 m (470 ft) amsl. The soil type is a Bazette clay loam and a post oak forest once covered the area in the mid-1800s.

A narrow upland prairie was located to the south. Site 41HP152E is in the southwest corner of the Nancy Webb Survey on a spur of the Bonham to Jefferson Road (old Harper's Crossing road). The top of Harper's Hill was occupied by at least two sites due to its extremely large

size and prominent location. Two distinct residential areas were observed.

Thirteen units (50 x 50 cm [19.7 x 19.7 in]) were hand excavated covering a 3000 m² (9842.5 ft²) area (Figure 4-23). The artifact assemblage consisted of 115 items (see Table 4-1). The majority of these were glass and brick fragments. All of the material recovered dates exclusively to a period between 1890 and pre-1955. Informants reported that this property had two tenant houses on it during the 1910s and up to the 1930s (Figure 4-23).

The assemblage contains architectural items, bottle glass, ceramics, and miscellaneous metal fragments. Bottles included brown snuff, clear bead sealed fruit jar, clear bottle glass, and cobalt blue bottle glass. Green pressed Depression glass and a black plastic nipple inset cap from a infant's bottle were present. Whiteware and natural clay-slipped stoneware were recovered. An drilled, opaque blue bead (6 mm diameter) and a screen door spring were recovered. Architectural items recovered consisted of cut and wire nails, a wire roofing nail, window glass, cement, and handmade brick. All of

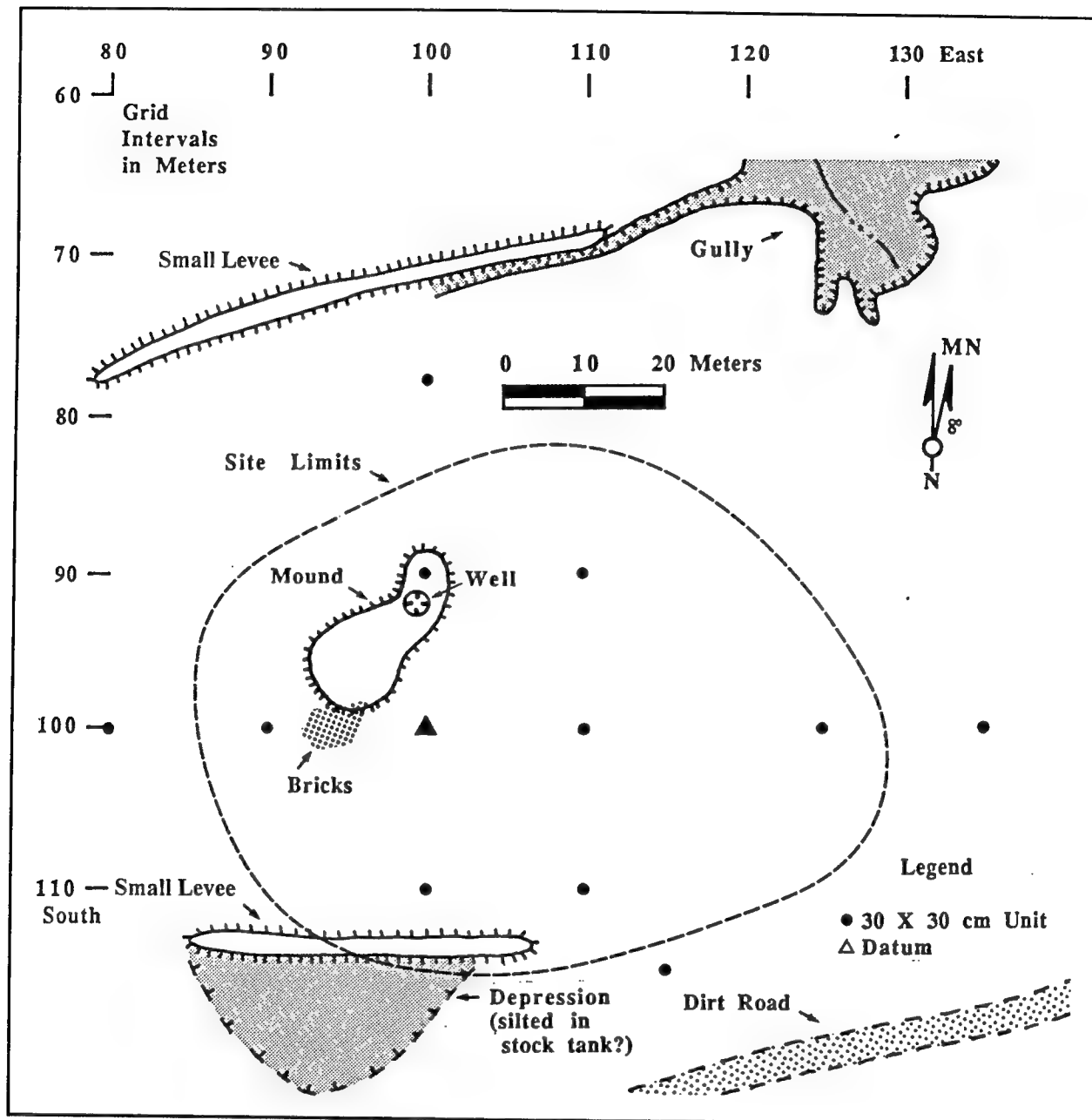


Figure 4-22. Location of excavation units and surface features at site 41HP151.

these items indicated a domestic occupation occurring sometime between 1890 and 1950 and possibly even later.

Since the assemblage was dominated by 20th century items, names of tenants were not identified, and many artifacts dated after 1940, further work is not recommended.

41HP152W

Site 41HP152W is the western twin of site 41HP152E, which together cover the upper portion of Harper's Hill. Site 41HP152W occupies the western promontory of the hill. The elevation is 143.3 m (470 ft) amsl and the site is on a Bazette clay loam soil type. The

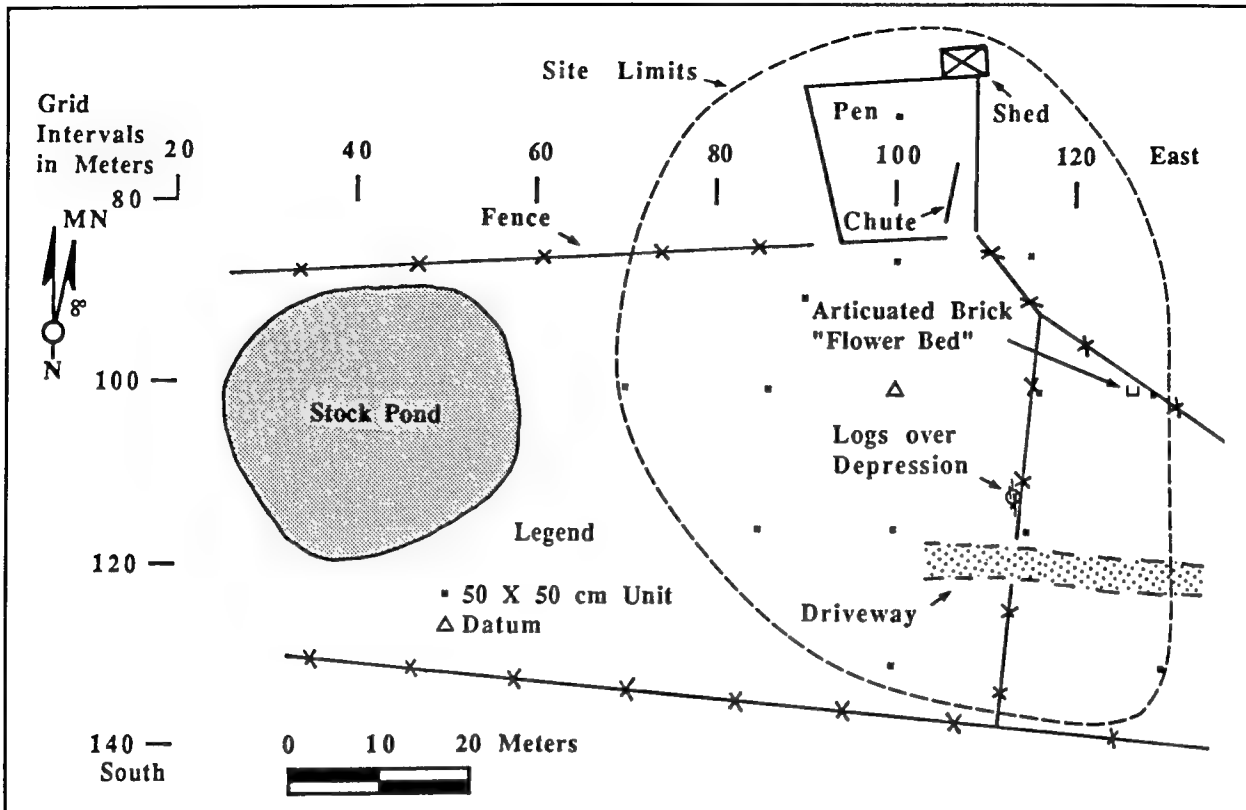


Figure 4-23. Location of excavation units and surface features at site 41HP152E.

presettlement vegetation was a post oak forest. The top of Harper's Hill was divided into two separate sites (East and West under 41HP152) due to the extremely large area involved and because two distinct residential areas were present as noted previously.

Site 41HP152W is located on the George Bushnell survey and was one of the earliest sites investigated south of the South Sulphur River. It may have been the original site of George W. Harper or a family member, but informants' reports were inconclusive concerning this matter and only knew it to be tenant occupied as early as 1900. It was also noted that there were at least two areas where tenant houses once stood on 41HP152W and each were tested.

Several surface features were evident across the top of the hill. These included an old eroded driveway, well depressions, chimney foundation and brick scatter, corrals, a stock tank, fallen log piers, and artifact concentrations. Thirty-one 50 x 50 cm (19.7 x 19.7 in) units (7.75 m²) were excavated (Figure 4-24) recovering 313 artifacts from over 5600 m² (1706.9 ft²). Although early ceramic and bottle glass artifacts were scattered over the site, most of the debris was from 20th century occupation (see Table 4-1).

The assemblage from this site contains some of the earliest, mid-19th century artifacts recovered from the embankment area. Items from the 1840 to 1860 period include blue shell edged ironstone (noncockled trident incised from S215 E206), lead glazed redware from S200 E215, mulberry transfer printed ironstone from S220 E220, alkaline glazed stoneware, salt vapor glazed stoneware, and olive green bottle glass. Sites 41DT113, 41DT118, and 41DT126 also yielded items similar to these both temporally and typologically. These latter sites, however, yielded more mid-19th century artifacts and less 20th century mixing because of little or no 20th century occupations.

Bottle glass sherds included olive green hand-finished case bottles (ca. 1850-1870), brown snuff, blue green, green, and manganese solarized hand-finished bottles, as well as clear and colored ABM bottles. Ceramics included plain and transfer (bluish green and mulberry) printed ironstones dating to the 1850s-1880s, both pre- and post 1860 varieties of shell edged ironstone, whiteware, bluish-tinted ironstone, and porcelain. Fine ceramic tableware types spanned from 1850 up to the 1940s. Table glass included pressed sherds and pink and bluish green colored early 20th century Depression type

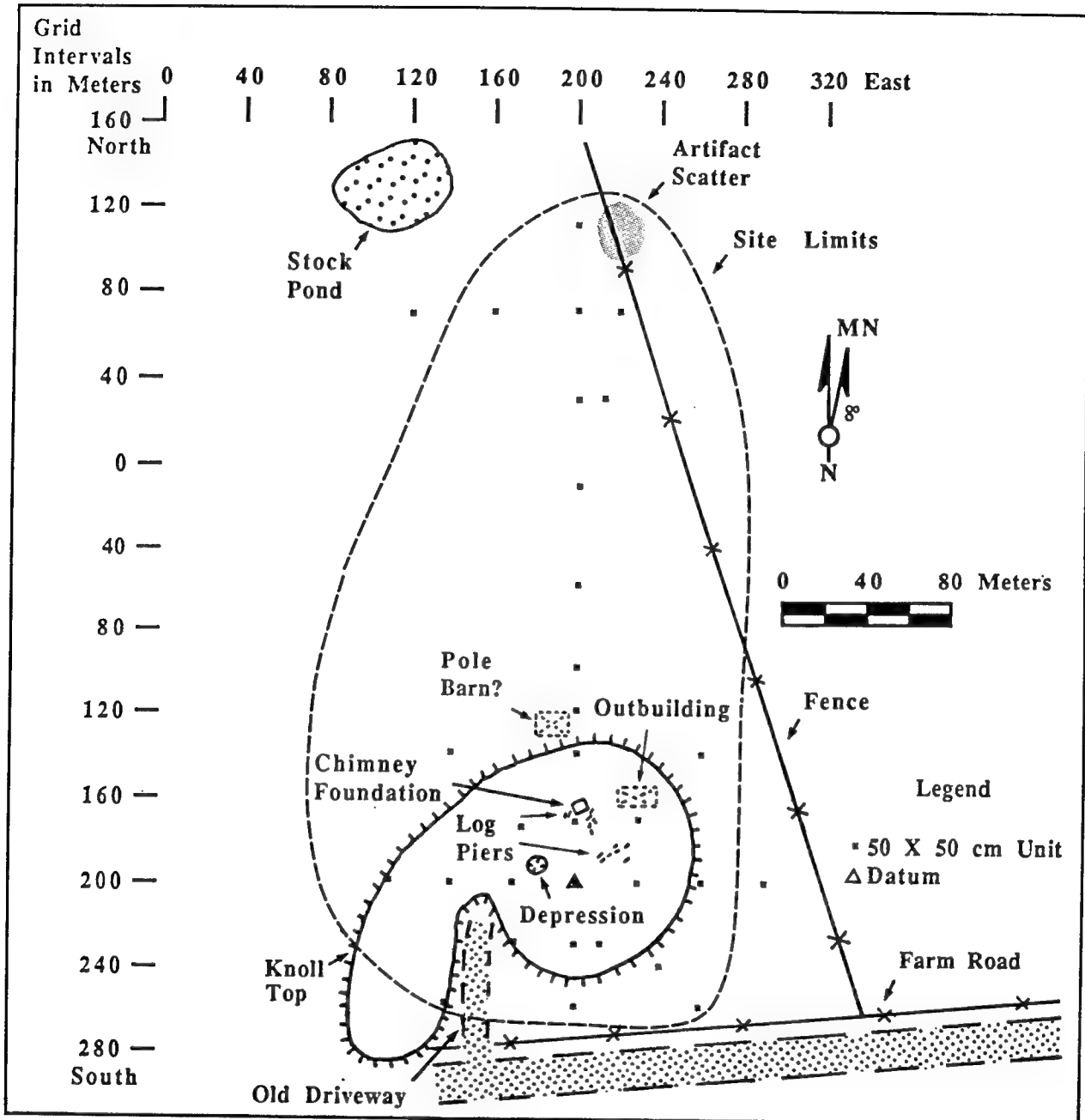


Figure 4-24. Location of excavation units and surface features at site 41HP152W.

sherds. Both 19th and 20th century vessels were represented.

Architectural items included window glass, cut and wire nails, iron hardware (hinge, etc.), handmade brick, and cement. A copper alloy lock plate was recovered in a feature sampled at Unit 27, S200 E185. This feature contained architectural debris and domestic items dating from the 1860s to the 1880s. Pressed table glass, burned oyster shell, early handmade brick, cut nails, lead shot

(6.4 mm diameter), a pig molar, burned animal bone, salt glazed stoneware, plain ironstone, and bottle glass were recovered. The feature also yielded a piece of a slate board and another fragment was recovered from Unit 14, S192 E208.

Finally, many other miscellaneous items were recovered and including a fragment of cast iron cooking ware, copper fastener eyelet, shoe lace hook, mother of pearl shell, iron comb tooth, and a sherd from a child's

doll plate. Although a fair percentage of the assemblage dates to the 19th century (i.e., approximately 20-30%), a sizable portion of artifacts dates to after 1890. Items clearly indicated a strong 1910-1940 component which was intermixed with the older components.

Although this site does have 1) a broad spectrum of materials reflecting a span of 90 years, 2) *in situ* above ground and subsurface features, and 3) could reveal information on the Harper family as well as the subsequent tenants of 41HP152W, the site will be protected in a park area and plans for park developments are still in the preliminary stages. As a result, no further work is recommended at this time.

41HP153

Site 41HP153 is located on the end of an upland promontory of the escarpment south of the South Sulphur River. It is located at an elevation of 140.3 m (460 ft) amsl and near the interface of the Ellis clay and Woodtell loam soils. Presettlement vegetation was mapped as post oak upland in the mid-1800s.

Surface features included a well depression and an old driveway. Sheet refuse banding was found to be intact. Fifteen 50 x 50 cm (19.7 x 19.7 in) units (3.75 m²) were excavated recovering 152 artifacts over a 2800 m²

(9186.3 ft²) area (Figure 4-25). The assemblage from 41HP153 indicates a predominantly 20th century domestic occupation. Although not very extensive in composition, a few items also suggested a possible 1890-1900 component. Ceramic types recovered included plain whiteware, overglaze polychrome decalcomania whiteware (1900-1940), light ivory tinted whiteware, stoneware, and porcelain. Stoneware varieties included Bristol-slipped and natural clay-slipped sherds. A fine ceramic whiteware sherd exhibited the *Crown Pottery Company* (ca. 1891-1956) backstamp.

Bottle glass included mostly ABM varieties of brown snuff, clear food and beverage, aqua canning jar, cobalt blue cosmetic/medicinal, and manganese solarized. One fragment of opaque "black" glass was recovered. Table glass sherds included clear glass and molded lamp globe rim fragments. Architectural remains included machine pressed brick, handmade brick, window glass, and wire nails. A white porcelain 4-hole button, .22 caliber rim fire cartridge, pieces of black clay skeet, and a double sided 78 rpm phonograph record fragment were also recovered.

As noted previously, sites like 41HP153 which contain mostly a 20th century assemblage were given low priority in the embankment area. Consequently, no further fieldwork is recommended at this time.

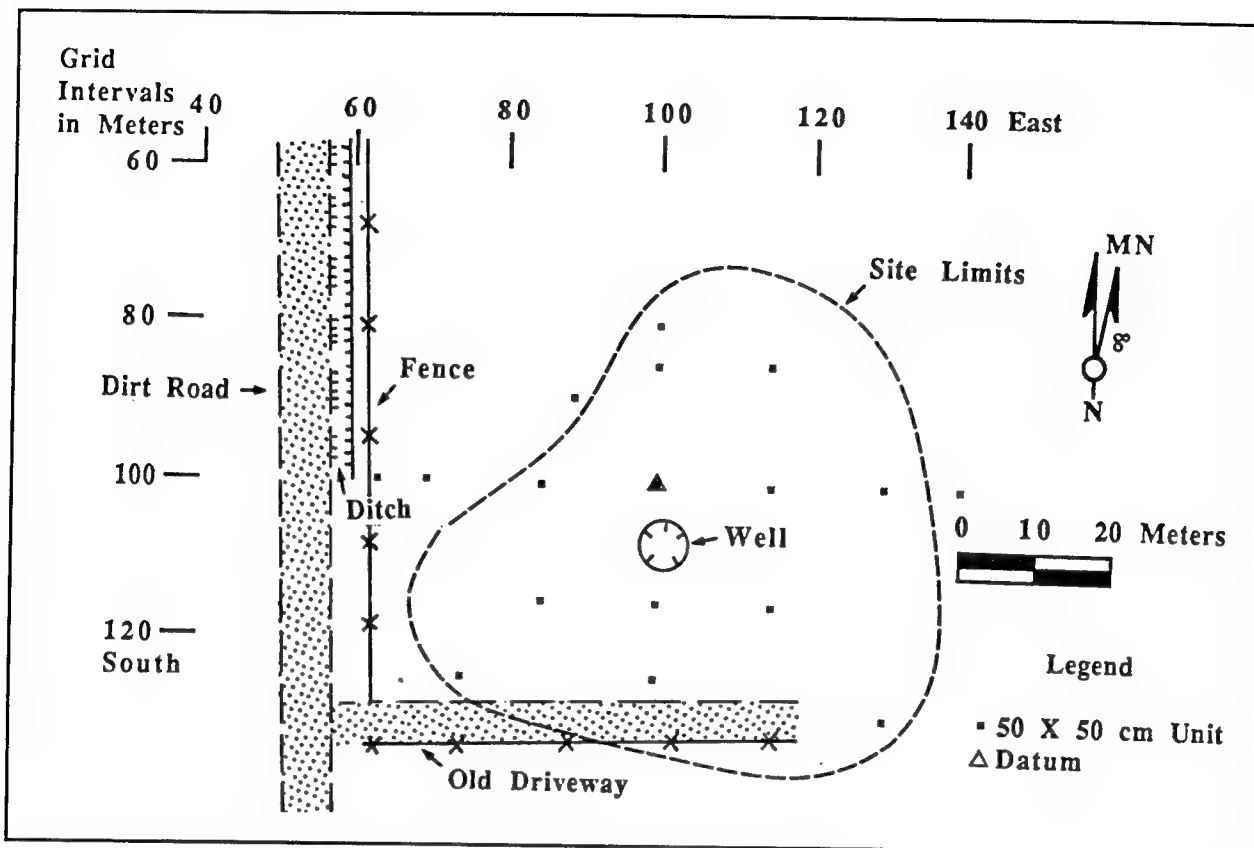


Figure 4-25. Location of excavation units and surface features at site 41HP153.

OVERVIEW OF EXCAVATED SITES

Daniel E. McGregor and David H. Journey

5

The selection of sites for intensive data recovery involved a consideration of all prehistoric and historic archaeological properties located within the 1902.8 ha (4700 ac) survey area. All cultural resources were assessed as to their contextual integrity and their potential to provide information needed to address a series of research problems outlined in the preliminary research design (Moir et al. 1987); and subsequently, the final research design (Moir and Journey 1989). The amount of work accomplished at these selected sites was subject to certain scheduling and budgetary constraints. The general nature of these constraints is discussed briefly here, and is followed by a consideration of the site selection process for both prehistoric and historic properties.

The scheduling of mitigation excavations was constrained by the existing schedule for construction of the dam embankment. This required that all field work be completed by 15 July 1987. After a period of negotiation over the levels of effort and funding, the official notice to proceed with excavations under the terms of Delivery Order Number 4 was received on 28 May 1987. Based on the results of test excavations, conducted under Delivery Order Number 3, the Lawson Site (41HP78) was later added, but without the authorization of additional funds. This required a readjustment of our planned work effort in order to accommodate this additional site.

PREHISTORIC SITES

Intensive excavations conducted under the terms of Delivery Order Number 4 included large scale excavations at four prehistoric sites (41DT80, 41DT124, 41HP78, and 41HP137), as well as expanded test excavations at four others (41DT111, 41DT127, 41HP136, and 41HP138). These sites were selected from the total sample of 43 prehistoric sites based on results of the survey and testing phases of the project. These particular sites were determined to have the best potential to produce data needed to address the research problems outlined in our preliminary research design. While some reasons for site selection were essentially site specific and are discussed in the individual prehistoric site report chapters (Chapters 6-9), certain general criteria were of particular importance. In general, a site's suitability for mitigation excavations was enhanced if it exhibited (1) good contextual integrity, (2) preservation of subsistence data, and (3) the presence of cultural features necessary for investigating site structure and community patterning. Three of the selected sites (41DT80, 41DT124, and 41HP78) had been shown to have excellent potential in all three of these areas.

What was essentially a phase of expanded test excavations was undertaken at five potentially single-component sites (41DT111, 41DT127, 41HP136,

41HP137, and 41HP138). The goal was to evaluate further the research potential of these sites, and to determine which of them was the best candidate for larger scale excavations. The research potential of these five sites was considered to be lower than that of the other three mitigated sites, primarily because none of them had yielded faunal remains. However, it was thought that this deficit could be overlooked if the site was shown to be the unmixed remains of a short term, single component occupation. The work at 41DT111 was confined to a small portion of that site where a Protohistoric or Contact period component was indicated by the results of limited testing. The other four sites were all very small in area and were thought to represent single-component occupations. Diagnostic artifacts recovered from limited testing had suggested a Middle Archaic date for 41DT127 and Early Ceramic period occupation of 41HP136, 41HP137, and 41HP138.

For various reasons, site 41HP137 was chosen from this group of sites for additional work. Site 41DT111 exhibited so few artifacts that large scale excavation was considered unproductive and not considered for additional work. Evidence of an additional, ceramic period component was documented at site 41DT127, effectively lessening its research potential. After the additional testing, single component status still was thought possible for the three Early Ceramic period sites. Site 41HP137 was chosen primarily because it was found to contain significant amounts of well preserved charcoal and carbonized nutshell. Neither site 41HP136 nor site 41HP138 yielded appreciable amounts of these materials. Because it was important that radiocarbon samples be obtained for dating these single component occupations, site 41HP137 was selected for excavation.

HISTORIC SITES

Intensive excavations conducted under Delivery Order No. 4 included large scale excavations at three historic sites: 41DT113, 41DT118, and 41DT126.

Two other historic sites (41HP142 and 41HP143) were deemed to have the potential to provide data necessary to answer questions outlined in the research design. Site 41HP142 was a multicomponent site, but the farm road leading to the dwelling contained a large number of items relating to the initial occupation. Site 41HP143 contained no subsurface artifacts, since the soil had been completely deflated. Therefore, intensive data collection at site 41HP142 and 41HP143 consisted of gridded surface collections. These five sites were deemed suitable for intensive data collection since they exhibited (1) integrity of artifact assemblages, (2) short, identifiable occupation episodes, (3) archival contents, and (4) discrete cultural features. Taken together, these sites represent initial frontier farmsteads and well developed late nineteenth century farms of landowners and tenants. They represented a broad spectrum of historic cultural resources in the dam embankment project area.

Data collection was phased according to the types of information sought. For instance, 41HP142 and 41HP143 provided large material culture assemblages that represented distinct temporal and socioeconomic circumstances. Also, since both had been deflated, data recovery could be performed rapidly and cost effectively with surface collections. Site 41DT113 was a small farmstead or camp occupied for only a few seasons in the early 1850s. A 2 m (6.56 x 6.56 ft) grid of 50 x 50 cm (19.7 x 19.7 in) units was used to sample the deposits, and revealed two firepits. Block excavations were then used to investigate these features. Sites 41DT118 and 41DT126 received the most extensive investigations. Both sites were sampled with a 4 m (13.1 x 13.1 ft) grid of 50 x 50 cm (19.7 x 19.7 in) units, followed by a 2 m (6.56 x 6.56 ft) grid of units across the dwelling and other activity areas. Magnetometer surveys and block excavations were used to explore features. A backhoe was used to profile the wells at both sites. Finally, heavy machinery was used to perform a final examination of subsurface features.

ARCHAEOLOGICAL INVESTIGATIONS AT 41DT80: THE THOMAS SITE

contributions by
Bonnie C. Yates and Cathy J. Crane

6

SETTING

This small prehistoric site (formerly designated X41DT68) was initially located and recorded in 1972 by follow-up work subsequent to the original SMU survey (Hyatt, unpublished field notes 1972:41-42). The site was located on a low knoll about 1 m (3.28 ft) above the floodplain at its highest point with an abrupt slope along its eastern edge (Figure 6-1). This knoll appeared to be an erosional remnant of a low terrace and was bounded by an old farm road on the west and the floodplain of the South Sulphur River on the east and south. The rise was ca. 60 m (196.8 ft) north of a bend in the river and ca. 1.4 km (0.9 mi) northeast of Harpers Crossing.

The rise on which the Thomas site is located covers an area of ca. 600 m² (1968.5 ft²) and, when first found, prehistoric material could be seen eroding from the southern and eastern sides. When the site was relocated in 1987, a large area of the floodplain east of the rise was found to contain scattered prehistoric artifacts, presumably either eroded from the rise or deflated in place. The presence of a deflated hearth (Feature 1) about 35 m (114.8 ft) to the east-northeast of the rise suggests the latter origin for at least some of this material.

The rise is at an elevation of ca. 123.1 m (404 ft) amsl with the deflated area to the east as low as 122 m (400 ft) amsl in open woodland. The rise and surrounding terrace was covered with short hardwoods (i.e., oak and

bois d'arc), and low brush and short grass covered the open areas. The deflated area to the east was covered with a higher canopy involving tall hardwoods with little understory.

The soil type is mapped as being Annona loam consisting of "deep, loamy soils in uplands" (Ressel 1979:48). A typical pedon of Annona loam consists of ca. 23 cm (9.1 in) thick loamy A horizon, varying in color from a dark grayish brown or brown A1 horizon (ca. 10 cm [3.9 in] thick) to a pale brown or light yellowish brown A2 horizon (ca. 13 cm [5.1 in] thick). The top of a typical B horizon is described as a dark red, red, or yellowish red mottled clay, grading to light brownish gray and then gray clay below about 40 cm (15.7 in).

PREVIOUS INVESTIGATIONS

Limited test excavations were carried out on this site by SMU in 1972 (Hyatt et al. 1974) and in 1973 (Hyatt and Doehner 1975). In 1972 the rise at 41DT80 was described as being:

littered with cultural materials including numerous sherds and both dart and arrow points. East and south sides of mound slope relatively gently away and materials are washing down these slopes. The west side of the mound is steep and few materials were noted in the flat in this

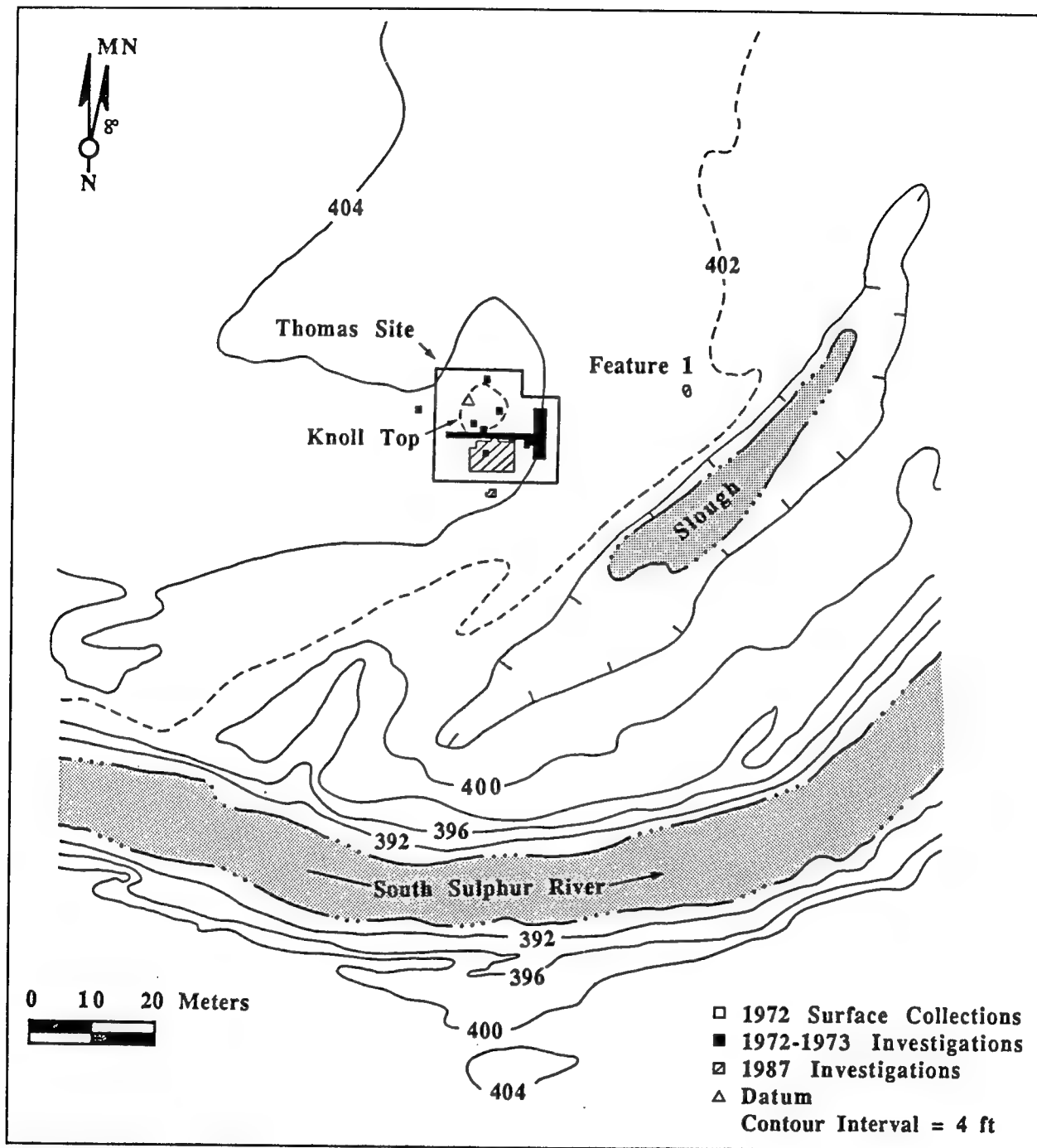


Figure Figure 6-1. Location of excavation units at 41DT80: the Thomas site.

direction. Mound also slopes off relatively gently to the north, but in spite of evidence of drainage in this direction, almost no cultural materials are washing down. The top of the mound is extensively disturbed by armadillos (Hyatt, unpublished field notes 1972:43).

The work in 1972 covered a period of about two weeks (7/28 to 8/11) and involved the hand excavation of six 1 x 1 m (3.28 x 3.28 ft) squares and the surface collection of a 336 m² (1102.4 ft²) area (Figure 6-2). The hand excavations were carried out in 5 cm (1.97 in) arbitrary levels. Most of the excavated matrix was

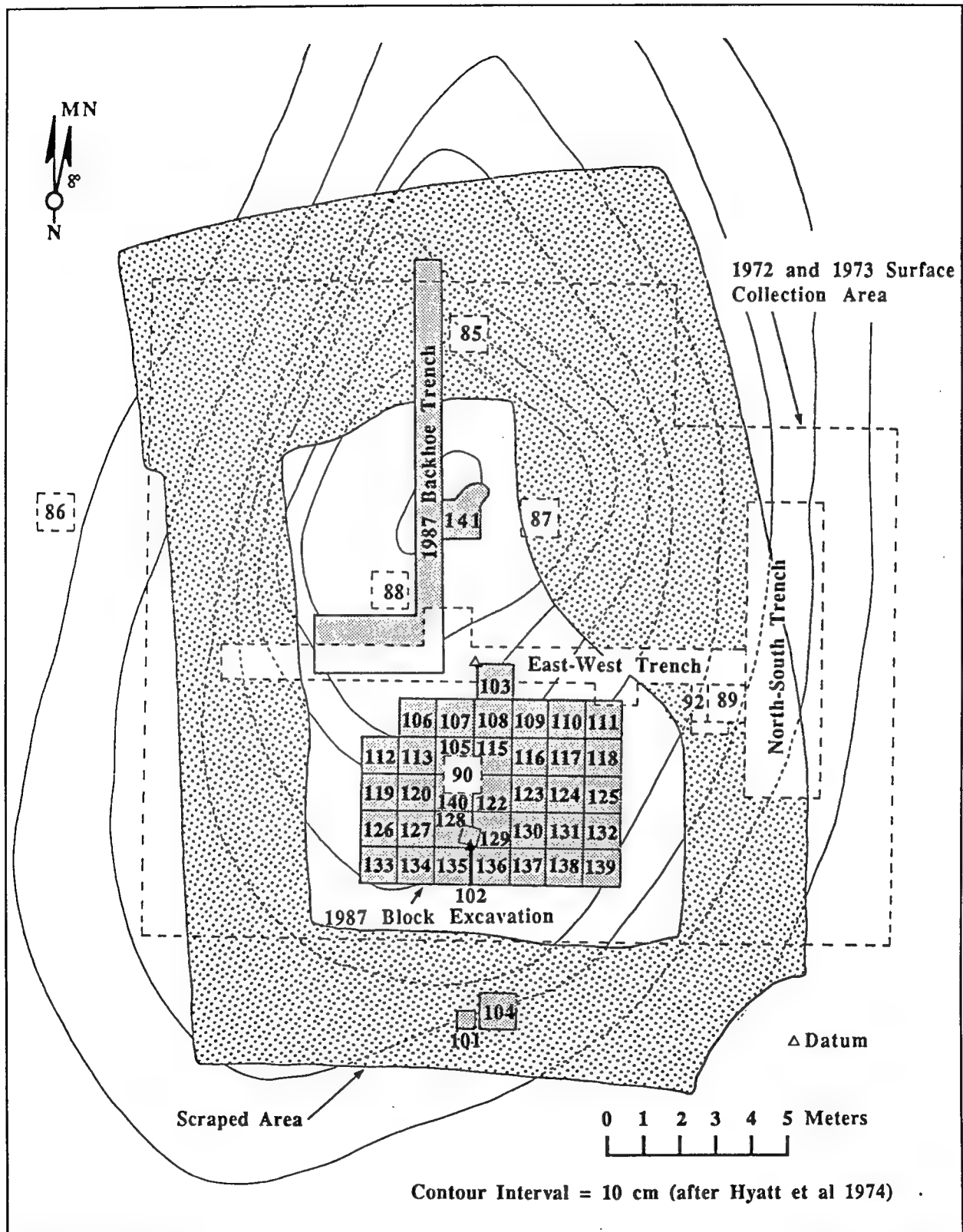


Figure 6-2. Locations of the 1972 and 1973 (dashed lines) surface collections and trenches, as well as the 1987 hand excavations and trench at 41DT80: the Thomas site.

screened through 0.25 inch (6.4 mm) mesh. The surface collection data showed high surface artifact densities on the east and southeast sides of the rise, with lower density concentrations on top and on the northwest slope (Hyatt et al. 1974:72, Figs. 29, 30, and 31). Alternate explanations proposed for this distribution included: (1) a higher degree of erosion or deflation on the eastern side of the rise, or (2) the use of the eastern side of the rise as a dump area with a concomitant concentration of cultural activities and features located away from this area (Hyatt et al. 1974:72).

The six test squares were scattered across the surface of the rise "to provide maximum coverage of the site area: "Unit 85 north of the top of the rise, Unit 86 to the west from the edge of the rise, Units 87 and 88 near the top of the rise, Unit 89 on the southeast slope, and Unit 90 on the south slope: (Hyatt et al. 1974:78). The general stratigraphy apparently consisted of a sandy loam midden overlying a yellow to yellowish brown clay B horizon. The depth of the B horizon below ground surface varied from 60-69 cm on top of the rise (Units 87 and 88, respectively) to 35, 39, and 30 cm on the north, east, and south slopes (Units 85, 89, and 90, respectively) to only 12 cm (or less) to the west of the rise (Unit 86). Possible "stabilized living surfaces" (Sullivan, unpublished field notes: 8/8/72), were suggested as being present on the top of the rise at 19-21 cm, 34-38 cm, and 48 cm below the surface.

Three cultural features were identified during the 1972 field season (Figure 6-3). Field notes and Hyatt et al. (1974) report that these included "an accumulation of sherds, cores, bifaces, bone, and fire-cracked rock" in Unit 87 (variously referred to as Feature 1 and Feature 91), a flexed burial (Feature 2 and Feature 93, and later Burial 1) in Units 89 and 92, and finally a deep pit in Unit 88 (Feature 3, here referred to as Feature 94). The artifact concentration of Feature 91 was suggested to have been in a "deep hole" extending from 20-55 cm below the surface (Hyatt et al. 1974:78). The Feature 91 concentration became wider with depth, "giving every indication of a pile of stuff" (Sullivan, unpublished field notes:8/8/72), and measuring 36 cm (14.2 in) east-west x 46 cm (18.1 in) north-south at the base. No hint of a pit or "hole" appears in the excavator's notes, but numerous scattered rocks, shells, and bones, plus at least three smaller trash "clusters" were noted in the northeast corner of the square between 40-55 cm below the surface. All of this suggests that Feature 91 may have been an area of high artifact concentration within a generally high density midden area.

Feature 93 (hereafter termed Burial 1) is located in the southeastern slope area of the site and was first

encountered between 20-25 cm below the surface. Subsequent enlargements revealed a semiflexed skeleton, oriented north-south with the head to the north, facing east (Hyatt et al. 1974:78, Figure 32). No mortuary furniture was identified, although a broken clay elbow pipe, three projectile points (arrow), and several large mussel shells were reported to be "in close proximity within the fill" (Hyatt et al. 1974:78). In addition, the fill of the burial pit apparently contained at least twelve sherds, although none were identified as to type (Hyatt et al. 1974: Table 19). Later laboratory analysis of the skeletal remains from Burial 1 showed it to have been a female, aged 30 ± 5 years (Westbury 1975:68-69). Pathologies noted included one dental abscess and eight caries.

The final cultural feature from the 1972 season reported upon was apparently a pit located near the center of the rise in Unit 88. This pit (Feature 94) was partially exposed in the southwest corner of the unit and reached a depth of about 91 cm, 22 cm below the top of the B horizon in this area of the site (Figure 6-4). The assumption was made at the time that the pit had originated from the top of the B zone, and while this is a possibility, it seems more likely that it originated from higher up in the midden. Unfortunately, neither the profile nor the photographs of this feature show where it originated. The cultural material from this feature was not reported separately by SMU in 1974, although presumably the material from the 70-85 cm and 85-90 cm levels originated from this feature (Hyatt et al. 1974:Table 18). This material includes three pieces of lithic debris, one core-biface, one retouched piece, 28 fragments of fire-cracked rock, and 24 pieces of bone. This feature was believed to be Archaic in date, presumably based on the assumed depth and the lack of late diagnostics (Valastro et al. 1978:253).

The investigations at 41DT80 during 1972 resulted in the recovery of a large sample of material culture remains. The surface collection consisted of 1,824 artifacts; including 511 pieces of lithic debris, 51 bifaces, 18 projectile points, 1,129 fragments of fire-cracked rock, 13 cores, one mano, four hammerstones, 19 retouched pieces, and 78 sherds. The excavated sample was even larger, consisting of 1,902 artifacts; including 451 pieces of lithic debris, 33 bifaces, 14 projectile points, 1,266 fragments of fire-cracked rock, nine cores, 13 retouched pieces, and 116 sherds. The excavated material also included a sample of 834 faunal elements. A fragment of elbow pipe and a bone perforator were also illustrated (see Hyatt et al. 1974: Figure 33q and r). No mention was made in the report of the quantity of shell recovered from either the surface or the excavations.

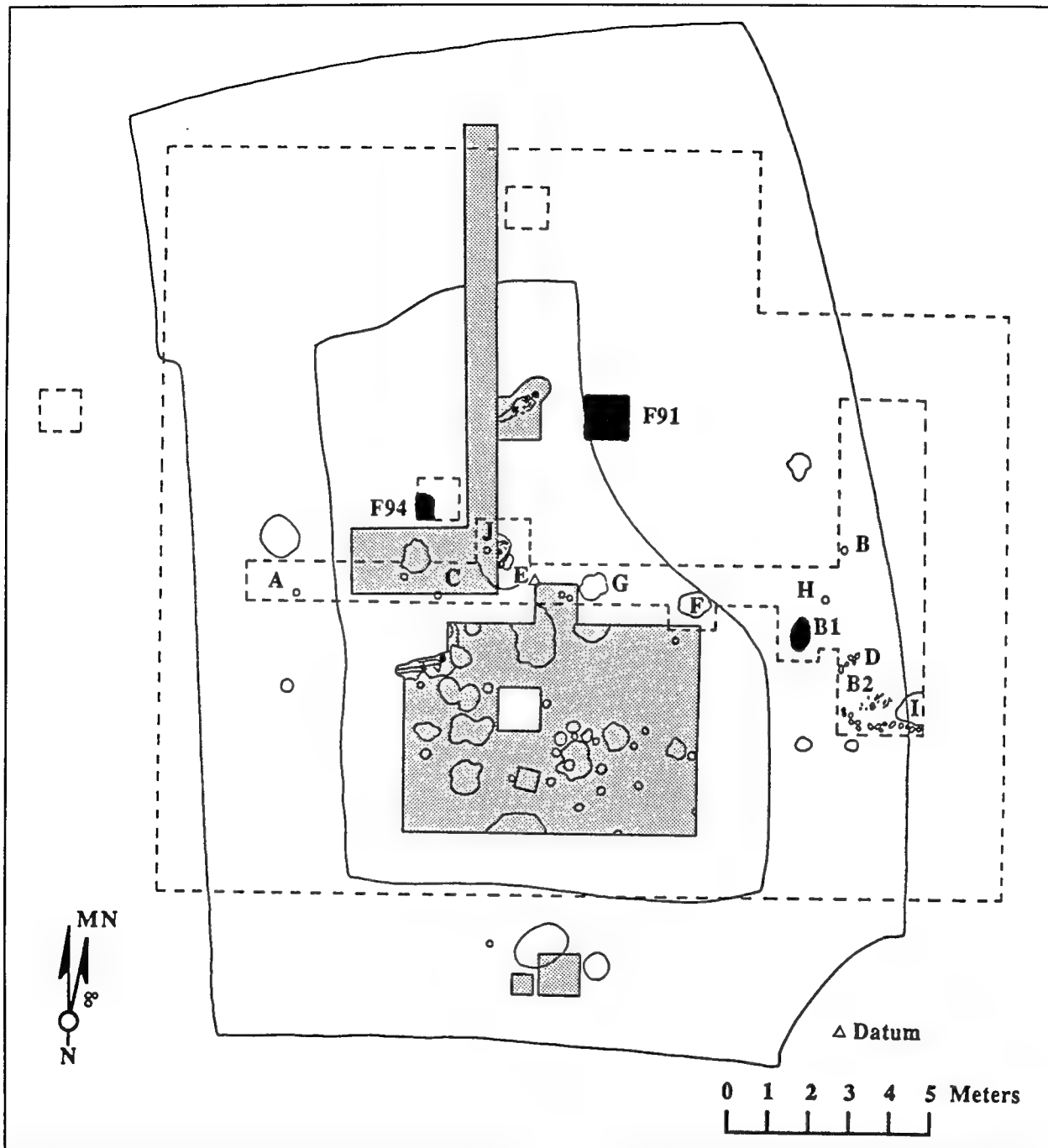


Figure 6-3. Location of the 1972 features (B1 refers to Burial 1) and the 1987 features and excavations (outlined features, trench, and block) at 41DT80: the Thomas site.

Temporally diagnostic artifacts included six dart points and 26 arrow points. Of the dart points, four were Garys and two were unidentifiable. Two of the Garys were from the surface while the other two were from the excavations. On the basis of published data, a finer identification of context is impossible. Of the arrow

points, 15 were Albas, five were Clifftons, one was a Friley, one was a Scallorn, and four were unidentifiable. The surface material included nine Albas, one Friley, three Clifftons, and one unidentifiable. The remainder were from the excavations. The ceramic sample included only fifteen decorated sherds (Hyatt et al. 1974:84). Of

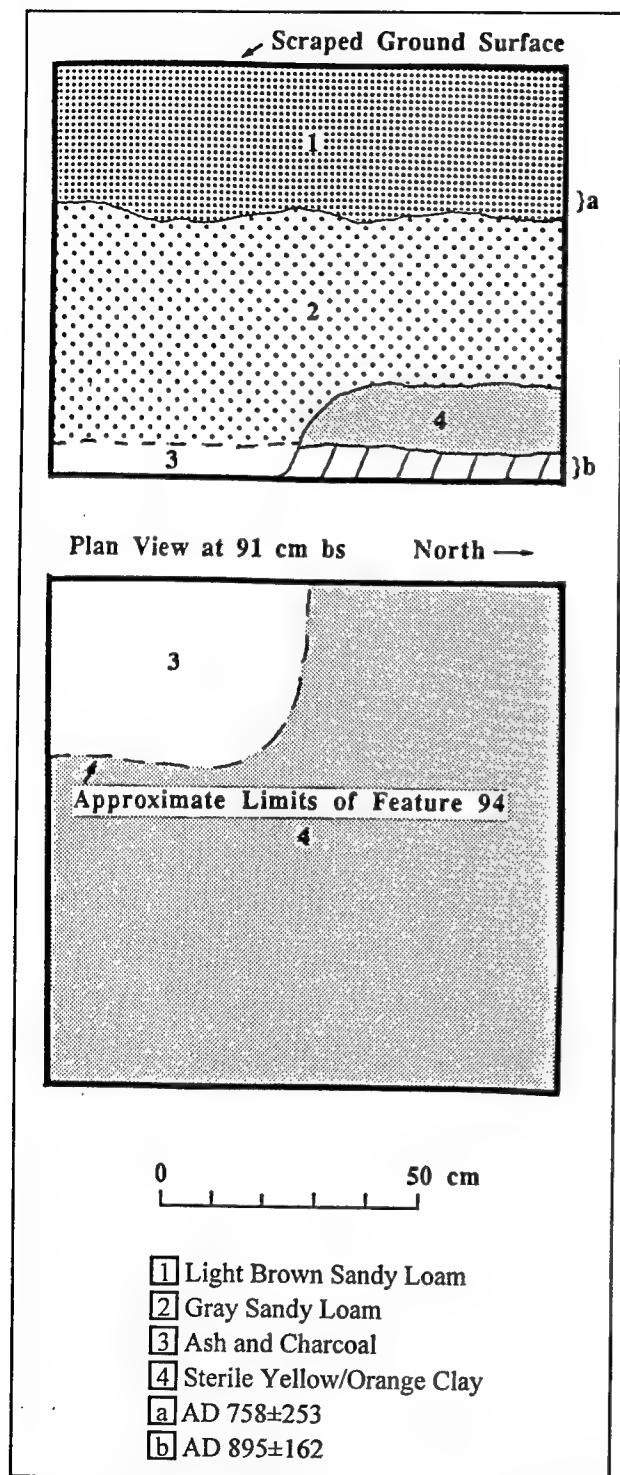


Figure 6-4. West profile and plan view of Unit 88 showing Feature 94 (see Figure 6-3 for location).

these, only three were identified as to type: Crockett Curvilinear Incised (1), Dunkin Incised (1), and

Pennington Punctated Incised (1). The remainder included miscellaneous incised and/or engraved (9), miscellaneous curvilinear incised (1), and "free punctated" (2). In regard to temper, the vast majority of sherds reported are tempered with "sherd" (120) or "sherd" in combination with either bone (44) or sand (11). Remaining tempers present included sand (15) and shell (1). On the basis of the small sample of decorated and typed sherds, the occupation at the Thomas site was affiliated with the Alto focus of the Gibson aspect and dated between about A.D. 500-1000 (Hyatt et al. 1974:84).

The faunal sample from the 1972 season at 41DT80 included 834 elements from the excavation contexts, of which 256, or 30.7%, were identifiable. The species represented included deer, gray fox, raccoon, cottontail rabbit, pocket gopher (probably intrusive), turkey, and box turtle (Hyatt et al. 1974: Table 20). Deer was the most numerous species present, both in terms of elements and in terms of minimum number of individuals. The next most frequent in regard to number of elements was box turtle. The deer remains showed no evidence of seasonality or selectivity in regard to age. Some butchering marks were noted on deer bones, but the sample was too small to show any consistent patterns in this regard. Fourteen percent of the total sample of elements, all of which were deer, showed evidence of having been burned.

Several fragments of human bone were included with the sample from Unit 89. This material apparently represents two individuals; an adult and a child, aged ca. 7 years. The adult remains almost certainly are associated with the remains of Burial 1. It is possible that the other remains are associated with Burial 2, discovered during the next season and located only 2 m (6.56 ft) away.

Two radiocarbon dates were run on charcoal samples collected from 41DT80 during the 1972 season. Both samples came from the same test unit: Unit 88. Although the two dates fall close together, the standard deviations are uncomfortably large. One sample that was collected from 85-92 cm below the surface in the "trash pit" (Feature 94) of presumed Archaic date, and yielded a radiocarbon date of A.D. 770 or 1180 ± 220 B.P., (Tx-1959, Hyatt and Doehner 1975:46; Valastro et al. 1978:253), calibrated to A.D. 895 or 1055 ± 162 B.P. (Bousman, Collins, and Pertulla 1988:Table 8). The other sample was collected from 25-30 cm below surface level of Unit 88 and yielded a date of A.D. 730 (1220 ± 350 B.P., TX-1958), calibrated to A.D. 758 (1192 ± 253 B.P.). No mention was made, either in the field notes or the published report, of the charcoal sample's position in the level. Cultural materials from this level included seven pieces of lithic debris, one core-biface, 16

fragments of fire-cracked rock, 35 pieces of bone, and five ceramic sherds (Hyatt et al. 1974: Table 18). Of the five sherds, two were sherd tempered and three were sherd-bone tempered; none were decorated (Hyatt et al. 1974: Table 19). On the basis of the depth and the presence of ceramics, the context was judged to be Alto focus in affiliation (Valastro et al. 1978:253).

On the basis of the 1972 fieldwork, it was concluded that site 41DT80 represented a multicomponent site, with the lower 15 cm (5.9 in) of cultural deposit attributable to a "thin" pre-ceramic Archaic occupation, but with the majority of the midden material resulting from a ceramic occupation. No major change in the pattern of activities could be identified at the site, but an increasingly intensive occupation through time was implied. The small sample of identified ceramic types were ascribed to the Alto focus of the Gibson aspect, and an essentially Early Caddoan date was implied for the primary occupation of the site. The report on the 1972 fieldwork ended with a recommendation for further work at the site, concentrating on the clarification of the cultural stratigraphy and the exposure of a larger area of living surface for the delineation of activity patterning.

The Thomas site received additional archaeological investigations during the summer of 1973 (Hyatt and Doehner 1975). This second season of investigations was ostensibly for the purpose of concentrating on "the exposure of cultural features" at the site (Hyatt and Doehner 1975:37). Two trenches were excavated across the site (i.e., the rise); the locations determined by the surface distributions of the material culture remains collected the previous season. A north-south trench, 2 m (6.56 ft) wide, was excavated on the eastern edge of the rise, in an area of high artifact density (see Figure 6-2). A second trench, only 1 m (3.28 ft) wide, was excavated running west from the north-south trench across the rise, about 4 m (13.1 ft) south of the highest point (Hyatt and Doehner 1975: Figures 23 and 24). Later, several areas of extension were excavated to expose complete features, but the bulk of the excavation at 41DT80 during 1973 was confined to these two trenches. Both of these trenches were excavated in 10 cm (3.9 in) arbitrary levels, but neither was subdivided into subunits. In order to speed the exposure and excavation of cultural features, none of the fill was screened.

The 1973 excavations did succeed in exposing more features than had the previous season's work. A total of ten features and one additional burial were located during 1973. The features included three shell concentrations (Features A, C, and J), two animal bone concentrations (Features B and H), one rock concentration (Feature D), three ash pits or hearths (Features E, F, and G), and one "trash" pit (Feature I). The feature designations are those

used in the excavation notes and their locations are shown on Figure 6-3. Table 6-1 is provided for purposes of correlating the terminology used here with that published by Hyatt and Doehner (1975).

The three shell concentrations, Features A, C, and J, were apparently circular and ranged between 18-20 cm (7.1-7.9 in) in diameter (Table 6-2). All three concentrations were similar, and one description serves for all:

fresh-water mussel shells standing on edge and arranged in a circular pattern primarily around the outside edge of a hole which apparently had been dug for this purpose. Most of the shells were unbroken and none of the valves were articulated. In most cases the outside of the shell was placed facing outward from the center of the hole (Hyatt and Doehner 1975:41).

The depth of these shell concentrations varied from 38-43 cm (15-16.9 in) below surface (Table 6-2), or between -10.38 and -10.50 in estimated absolute elevations using the 1987 datum. It was suggested by Hyatt and Doehner (1975:41) that these features were postmolds in which the shell was used to wedge the posts into the hole. This interpretation seems to be a reasonable one given their descriptions of these features. It is instructive also to note that the very tops of these shell features come relatively close to the surface of the ground (in the case of Feature A, only 3 cm below surface) and provides strong argument for the site rise never having been plowed.

The three ash pits or hearths (Features E, F, and G) are a little more difficult to functionally interpret. The field notes describe these features as "ash pits," concentrations of ash and charcoal associated with bone, shell, fire-cracked rock, and some artifacts. The photographs show what appear to be pits intruding into the B horizon, filled with gray silty loam mottled with ash and charcoal, while the few plan and profile drawings that exist (Figure 6-5) show the bottoms of what appear to be vertical walled, concave based pits. In the published report, however, all three are referred to as hearths (Hyatt and Doehner 1975:37).

Features F and G were definitely pits filled with trash when excavated, but the published descriptions raise the possibility of original use as ovens or roasting pits. For Feature G (Hearth 1), "evidence of burning around the bottom and sides of the pit consisted of a thin zone of hardened oxidized soil" (Hyatt and Doehner 1975:37) and the profile drawing of Feature F shows a dashed margin to the pit which may have been meant to indicate an

TABLE 6-1
Correlation Of Feature Terminology Used At 41DT80 In 1973

Field Note Designation	Hyatt and Doehner 1975 Designation	Nature of Feature
A	Shell concentration No. 1	Shell concentration
B	Trash concentration No. 1	Animal concentration
C	Shell concentration No. 2	Shell concentration
D	Rock concentration No. 1	Rock concentration
E	Hearth No. 3	Ash and rock, etc.
F	Hearth No. 2	Ash pit
G	Hearth No. 1	Ash pit
H	Trash concentration No. 2	Bone concentration
I	Trash Pit No. 1	Pit
J	Shell concentration No. 3	Shell concentration
Burial 2	Burial 2	

TABLE 6-2
Dimensions Of Excavated Features At Site 41DT80, 1973 Investigations

Feature	Size	Depth Below Surface	Estimated Absolute Depth of Surface Below 1987 Datum
<i>Shell Concentrations</i>			
A	diameter 20 cm, tapering to 8 cm	3-38 cm bs	10.12 m
C	diameter 20 cm	18-43 cm bs	9.98 m
J	diameter 18 cm	9-39 cm bs	9.99 m
<i>Ash Pit/Hearths</i>			
E	60 (N-S) x 30 (E-W) cm	9-22 cm bs	10.00 m
F	100 (N-S) x 102 (E-W) cm	19-53 cm bs	10.10 m
G	65 (N-S) x 70 (E-W) cm	33-54 cm bs	10.04 m
<i>Trash Concentrations</i>			
H	10 x 7 cm	10 cm bs	10.21 m
B	diameter 40 cm	18-22 cm bs	10.50 m
<i>Rock Concentrations</i>			
D	diameter ca. <2.00 m	12-25 cm bs	10.60 m
<i>Trash Pits</i>			
I	?	?	?

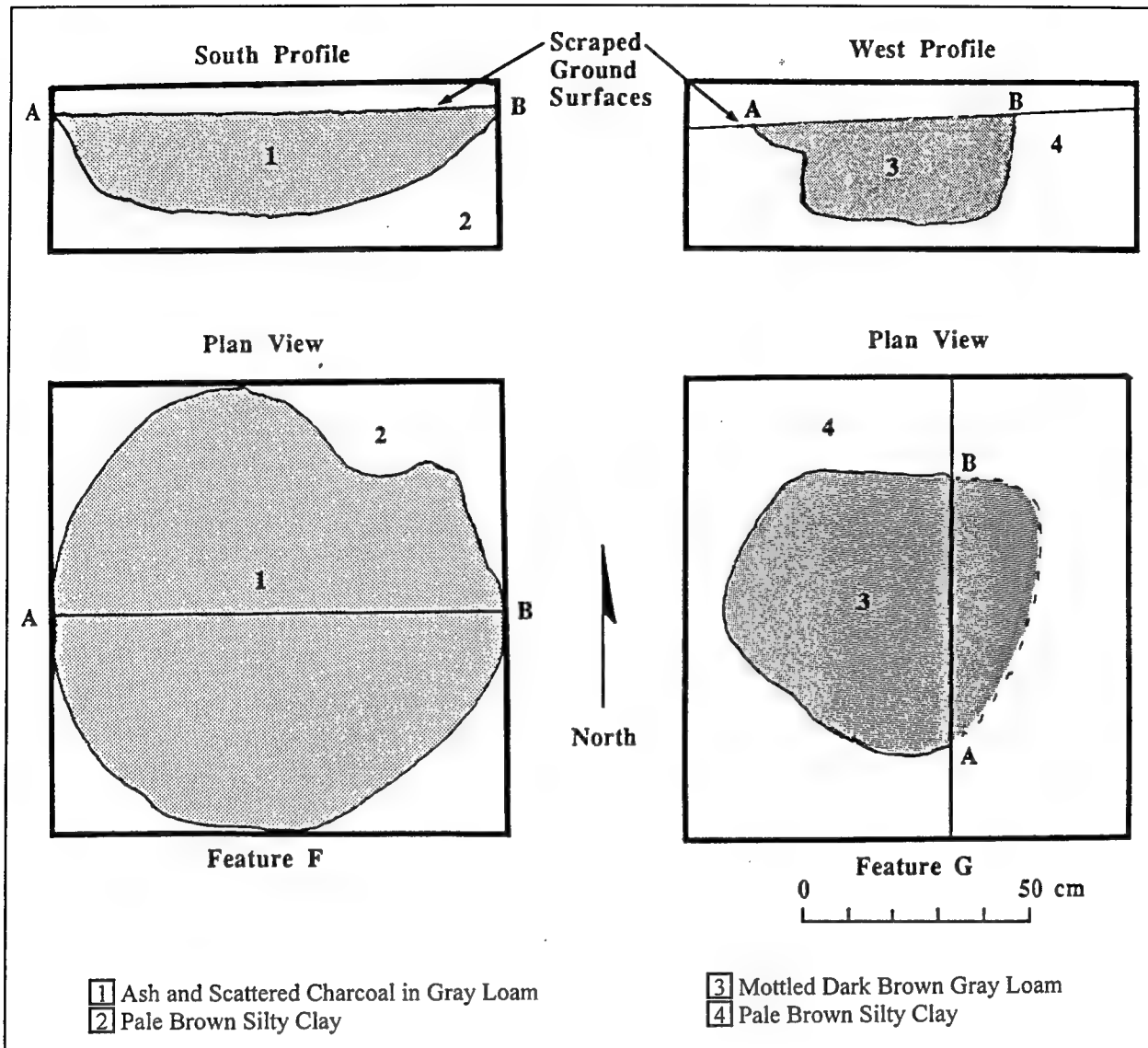


Figure 6-5. Profiles and plan views of Features F and G (see Table 6-2 for identification).

oxidization zone. (Unfortunately this zone was not labeled). Feature E was neither drawn nor profiled, but the photographs seem to show a more convex-based feature than either Feature F or G. Despite the published descriptions, a careful examination of the photographs of each of these features does not reveal any definitely identifiable oxidization zone around either Feature F or Feature G. The coloration at the edge of these pits does not appear to be significantly different from that of the natural pale brown B horizon into which the two features intrude.

Feature E, however, is a different story. The photograph of its profile seems to show some discoloration consisting of possible blackening and orange

discoloration of the sediments underlying the feature. This is at a depth of 22 cm (8.7 in) below the surface in an area where the cultural deposit went quite a bit deeper. Since Feature E did not intrude into the B Zone, the orange discoloration at the base of the feature must be caused by some other factor, probably oxidation below a fire pit. The shallowness and overall basin shape of Feature E are not at variance with this interpretation. The conclusion seems to be that the evidence supports Feature E's function as a hearth, but the same cannot be said of Features F and G, whose identifications as "hearths" must remain equivocal.

The two "trash concentrations" (Features B and H) appear to have been concentrations of animal bone

identified in the eastern end of the East-West Trench and in the North-South Trench. No pit was identifiable in either instance and the "cultural reality" of either feature is extremely doubtful. (In the case of Feature H, the remains appeared to be those of a small rodent and were probably intrusive into the archaeological deposits). The rock concentration, Feature D, was located in the southern section of the North-South Trench and seemed to form a rough ring, over two meters across, around the area of Burial 2. Despite its location, no definite association between Burial 2 and Feature D was made (Hyatt and Doehner 1975:41), and it seems likely that Feature D is an accumulation of fire-cracked rock in a midden area in this portion of the site. The fact that the east and southeast area of the rise showed the highest density of surface material culture remains tends to support this view (Hyatt et al. 1974:Figures 29-31). The final feature, "Trash Pit 1" (Feature I) was described as a trash pit with "loosely packed dirt fill" which postdated Burial 2 (Hyatt and Doehner 1975:41). Unfortunately, plans or profile drawings of this feature were not found, and the only photograph of Feature I apparently shows the pit in the process of excavation. Artifacts from the fill of the feature included bone, fire-cracked rock, and shell. Given the sparse nature of the notes on Feature I, it is impossible to do much more than concur with its original identification as a trash pit.

The final feature identified during the 1973 field season was Burial 2, located in the southern 2 x 2 m (6.56 x 6.56 ft) area of the North-South Trench. This burial consisted of the remains of a child, estimated at 8 ± 2 years, of indeterminate sex and with no identified pathologies (Westbury 1975:69). The remains were too badly disturbed to determine orientation. The burial drawing in the field notes, however, together with the laboratory identifications of the remains, suggests that the individual was originally in a flexed or semiflexed position, on the left side, with the head to the southwest and facing northwest. Feature I was reported to have "partially overlapped the burial area" (Hyatt and Doehner 1975:41), but it is unclear what this refers to exactly since no drawings of Feature I together with Burial 2 remains were found and apparently no pit outline was identified for Burial 2. This difficulty is compounded by the fact that Burial 2 apparently was never mapped accurately within the larger North-South Trench. (Its location on Figure 6-3 is simply the location of the dot on the 1975 site map). No grave furniture was identified as being directly or indirectly associated with this burial.

The lack of screening during the 1973 field season resulted in greatly reduced artifact samples when compared with the previous season. The material reported in the final report included 132 sherds, one clay pipe stem,

19 projectile points, one quartzite mano and one quartzite hammerstone, 31 unifacially retouched pieces, 291 pieces of lithic debris, and 883 faunal elements (Hyatt and Doehner 1975; Butler 1975a). Temporally diagnostic artifacts included eight dart points and ten arrow points (the final projectile point was unidentifiable). The dart points were divided evenly between Garys ($n = 4$) and those which were unidentifiable ($n = 4$). All were recovered within the upper 30 cm (11.8 in) of the trenches. Of the ten arrow points recovered, half were unidentifiable and the remainder included three Albas, one Friley, and one Scallorn. The deepest point, the Friley, came from 30-40 cm (11.8-15.7 in) below surface (Hyatt and Doehner 1975:45). Of the ceramic sample from this season, 124 sherds were plain and only eight were decorated. The decorated sample included seven miscellaneous incised sherds and one finger impressed sherd (termed "free punctated" the previous season). The majority of the tempering consisted of sand ($n = 61$) with bone being the next most common agent ($n = 41$). Most of the remaining sherds were "sherd" tempered, either in combination with clay ($n = 21$) or bone ($n = 3$). Six sherds were tempered with shell and were viewed as evidence of a possible late occupation of the site associated with the Fulton aspect.

Of the 883 faunal elements recovered during 1973, 285 (32%) were identifiable. Additional species identified from this sample included jackrabbit, squirrel, red fox, striped skunk, and snapping turtle (Butler 1975a:64-65). Deer continued to be the most common species, followed by box turtle and turkey. Beyond increasing the number of species present, the 1973 sample did little to refine the conclusions of the previous season.

Based on the two seasons of excavation at 41DT80, it was concluded that the activities which had occurred on the site included "cooking, lithic tool manufacturing, hunting of deer and smaller mammals, and the collection or riverine resources such as turtles and fresh-water mussels" (Hyatt and Doehner 1975:47). The limited size of the apparent occupation area was believed to restrict the size of the social group that had occupied the site to no more than one or two family groups. This conclusion was believed to be supported by the burial data. Occupations were believed to have included a "minor Late Archaic component, Gibson Aspect, and an apparently brief Fulton Aspect component" (Hyatt and Doehner 1975:47). Apparently, the Late Archaic occupation was indicated by the presence of eight Gary points, a point type now viewed as being more indicative of the Early Ceramic period (Schambach 1982:132-197; Bousman, Collins, and Pertulla 1988:39-42). Presumably, the typed ceramics and the arrow points were what suggested a major Gibson aspect occupation, a view supported by the

two radiocarbon dates and a dating of the Gibson aspect somewhere between A.D. 500-1000 (Hyatt et al. 1974). On the basis of this, the Gibson aspect, or Early Caddoan, occupation at the Thomas site was placed at ca. A.D. 700-800. Finally, the handful of shell tempered ceramics at the site provided the evidence of a sparse Fulton aspect, or Late Caddoan occupation, placed at around A.D. 1200-1400 (Hyatt et al. 1974:89). The summary discussion of the Thomas site concludes with a tentative suggestion that "this area of the Sulphur River drainage may have been only sporadically occupied after A.D. 800-1000" (Hyatt and Doehner 1975:47).

A re-evaluation of the data from the Thomas site in connection with a broader overview of the Cooper Basin archaeology (Bousman, Collins, and Perttula 1988) modified slightly the conclusions reached in 1975. This re-evaluation identified the high likelihood of primary occupation components during the Early Ceramic (200 B.C.-A.D. 800) and Early Caddoan I/II (A.D. 800-1400) periods, with a possible minimal presence at the site during the Late Caddoan period (A.D. 1400-1700) (Bousman, Collins, and Perttula 1988:Table 8). The major change comes in the recognition of an Early Ceramic, and not a Late Archaic, component at the Thomas site. The other area of a significant contribution to our understanding of the Thomas site comes in regard to the paleodemography of the inhabitants. The two burials from the Thomas site, believed to date either to the Early Ceramic or Early Caddoan periods (Bousman, Collins, and Perttula 1988:39), are noted to have a dental caries rate of 5.5/person (Bousman, Collins, and Perttula 1988:42). This rate, as the authors point out, seems to be "compatible with general maize consumption and equally comparable to other Caddoan area bioarchaeological assemblages dating between ca. A.D. 900-1200" (Rose et al. 1984; see also Appendix C). Thus, within the limitations of a small sample and uncertain temporal affiliation, there is evidence to suggest some degree of maize cultivation being practiced by the inhabitants of the Thomas site.

EXCAVATION STRATEGY

The Thomas site, 41DT80, was reevaluated again by SMU archaeological teams during a period of survey and testing of the Cooper Lake Embankment construction area in the spring of 1987. Due to the relatively broad extent of previous excavations, the research performed in 1987 was designed to draw upon past information. Areas that had not received excavations were addressed. Broad-scale machine scraping insured that most human burials were discovered. Because of some confusion in the relocation of site 41DT80 based on SMU's old survey and

excavation notes the site was believed to be unrecorded and was treated accordingly during the survey and testing period of the project. When initially relocated by survey, the deposits at 41DT80 were examined in two shovel tests, spaced about 10 m (32.8 ft) apart. The first of these was located near the top of the rise and was found to contain well-preserved bone. The second was placed to the southeast and contained fire-cracked rock and a few flakes. The dark silty loam fill of these tests was believed to be a midden deposit.

The Thomas site was revisited several times for further testing during the subsequent phase of the project. This work involved the excavation of two 50 x 50 cm (19.7 x 19.7 in) squares (Units 101 and 102), two 1 x 1 m (3.28 x 3.28 ft) squares (Units 103 and 104), and the recording of a deflated hearth (Feature 1) observed in a scoured section of floodplain east of the rise (see Figures 6-1 and 6-2). All four of these test units were laid out with a Brunton compass and tape on the southern slope of the rise since a large portion of the top and the northern slope was heavily disturbed by animal burrowing activity. This activity was revealed by large areas of heaped up backdirt piles resulting from this burrowing. These disturbance piles had apparently been noted by the SMU crew when the site had first been found in 1972 (see above). The two 50 x 50 cm (19.7 x 19.7 in) units were excavated in order to obtain a quick and controlled sample of the cultural deposits on top of the rise. Each square was dug down to the base of the cultural deposit as a single level and the fill screened through .25 inch (6.4 mm) mesh. Unit 101, placed on the southern margin of the rise (see Figure 6-2) revealed ca. 35-38 cm (13.8-15 in) of what was described as very dark gray sandy clay loam overlying a light brown to yellowish brown sandy clay. (The unit was excavated to 40 cm [15.7 in] below surface). The dark gray matrix contained a wide variety of cultural material, including flakes, bone, charred nutshell, fire-cracked rock, mussel shell, baked clay, and one sherd. Unit 102 was placed further north up the slope of the rise and contained 25 cm (9.8 in) of a dark brown sandy loam over yellowish brown sandy clay loam (Unit 102 terminated at 33 cm (13 in) below surface). Like Unit 101, Unit 102 contained a wide variety of cultural material, including flakes, bone, fire-cracked rock, mussel shell, baked clay, charcoal, one biface, a drill, and one arrow point. The impression of the excavators was that the majority of this material came from the first 15 cm (5.9 in), with decreasing frequencies with depth. This was especially true of the fire-cracked rock confined to the upper 15 cm (5.9 in).

The Thomas site was revisited once again during the testing phase of the project and two 1 x 1 m (3.28 x 3.28 ft) squares were excavated in order to gain some vertical control over the deposits on top of the rise. Unit 103 was

placed just south of the portion of the rise most affected by animal activity, while Unit 104 was placed about 10 m (32.8 ft) further south, next to the earlier Unit 101 test. These units were excavated in 10 cm (3.9 in) arbitrary levels, screening all the fill. Unit 103 revealed 29-33 cm (11.4-13 in) of very dark grayish brown silty loam (10YR3/2 with 10YR3/3) A zone overlying a pale brown to yellowish brown sandy clay B zone. The first three levels were removed from this A zone. Unfortunately, Unit 103 had inadvertently overlapped a portion of the older 1973 East-West Trench (see Figure 6-2) and this disturbance was not identified until Level 3. The base of this disturbance was reached at 38 cm (15 in) in Level 4. The lack of screening at 41DT80 during the 1973 season meant that the trench was backfilled with fill containing a great deal of unassociated material cultural remains. The contaminating material was separated in Level 3 (Level 3 North) and the filtering effect of the 1973 excavation technique can easily be seen, with a few flakes and shell, but large quantities of baked clay, bone, and fire-cracked rock. Levels 4 and 5 were excavated into the B zone, following the intrusion of an aboriginal pit in the southwestern corner of the square (see Feature 2 below). Thus, it is not clear how much of Level 4 and 5 material was recovered from the B zone as opposed to the intrusive Feature 2.

Unit 104, the second 1 x 1 m (3.28 x 3.28 ft) square excavated at this time, was located about 10 m (32.8 ft) south of Unit 103, right next to the 50 x 50 cm (19.7 x 19.7) Unit 102 on the east (see Figure 6-2). Unit 104 was excavated in four 10 cm (3.9 in) arbitrary levels using the same procedures as for Unit 103. The top three levels appeared to penetrate a dark grayish brown to dark brown silty loam down to about 30 cm (11.8 in). Level 4 was apparently composed of the yellowish brown silty clay B zone down to 40 cm (15.7 in) below the surface. The vast majority of artifacts from this unit were recovered from the upper three levels, and included 92.6% of the artifacts by frequency and 94.2% of the nonartifactual material by weight. Later scraping in this area revealed the northwest corner of Unit 104 to have intruded into a portion of a large pit, Feature 36 (see below). A small stain was observed in this area of Unit 104 at the base of Level 2, indicating that this feature began within 20 cm (7.9 in) of the surface. Unit 104 contained a higher frequency of most artifact types and a greater weight of most types of nonartifactual material than was found in Unit 103.

For various reasons, the Thomas site was one of those chosen for mitigation following the testing phase of the project (see Chapter 3) and this work was carried out between June 23 and July 30, 1987. These investigations involved the hand excavation of most of a 5 x 7 m (16.4 x 23 ft) block located on the south-central slope of the site

rise, the excavation of a north-south backhoe trench through the center of the rise north of the block, and, finally, the machine scraping of a large area of the rise surrounding the block and trench. Unfortunately, the presence of several sizable trees made a complete scraping of the top of the rise impossible.

Using a transit and tape, the excavation block was emplaced on the south side of Unit 103. The four corners of the block were shot in with a transit, oriented to true north, and individual 1 x 1 m (3.28 x 3.28 ft) units were laid out with a tape. A permanent datum was set at the northwest corner of Unit 103, with an arbitrary 0 point given the designation 10 m, which increases downwards (i.e., -10.01, -10.3, and -10.4). The block was composed of 35 1 x 1 m (3.28 x 3.28 ft) squares. Due to the occurrence of a tree in the extreme northwest corner of the block only 34 were dug. The units were labeled 105-140, inclusive. Due to an oversight in the field, numbers 114 and 121 were not used. This excavation block contained the old SMU Unit 90, and the previous 50 x 50 cm (19.7 x 19.7 in) Unit 102.

The 1 x 1 m (3.28 x 3.28 ft) units contained within the excavation block at 41DT80 were excavated by hand, using shovels and trowels, in 10 cm (3.28 in) arbitrary levels. Ten liters of fill from each level was set aside for fine water screening through 1/16 inch (1.6 mm) window screen, while the bulk of the fill from each level was water screened through .25 inch (6.4 mm) mesh screen. Most units were excavated in three levels, down to the base of the A zone/midden. In at least one case, a fourth level was needed to sufficiently penetrate the B zone (Unit 112). Following the removal of the A horizon from the block, the top of the B zone was scraped for intrusive features, recorded, and then all identified cultural features sectioned. Due to time constraints, the majority of cultural features defined below the A horizon were only partially excavated; half of the fill removed. Twenty liters of fill were saved for later flotation if the feature was large enough. If not, all excavated fill was saved and the volume recorded for future comparisons. Any feature fill exceeding 20 liters was water screened through the larger size screen in the usual fashion. All features were drawn in both plan and profile views, and photographs were taken of all features of sufficient size to be classified as pits.

Although the top of the rise at the Thomas site was deemed too disturbed for profitable hand excavation, it was decided to excavate a backhoe trench through this area in order to get a better idea of the nature of the rise. For this reason, a ca. 11 m (36.1 ft) long backhoe trench was excavated along a roughly north-south line, about 1 m (3.28 ft) west of the site datum. The trench was deliberately begun within the limits of SMU's old East-

West Trench and carried north to beyond the limits of the cultural deposits on the rise. The profile of this trench, excavated well into the B horizon, shows the high degree of animal disturbance in this area of the site. The western profile of the trench was so disturbed by animal burrows as to make its recording virtually useless. This trench showed the cultural deposits to consist of a 35-50 cm (13.8-19.7 in) thick A horizon overlying the pale yellowish brown B zone. Interestingly, the B zone does not rise beneath the cultural deposits, suggesting that at least a portion of the rise was artificial, probably being deposited as midden. A few streaks of lighter clay were visible within the A horizon, particularly on the west wall; but they were not continuous and seemed to be largely the result of historical disturbance of the northwestern portion of the rise, which may have been cut by a bulldozer at some time. The northern end of the backhoe trench did turn up several historic artifacts, including fragments of metal, a glass sherd, and what appeared to be a piece of flow blue decorated ceramic. At the southern end of the east wall of the trench, several prehistoric features were noted, including two large pits intrusive into the B horizon, and two burials (see Burials 3 and 5 below).

Following the completion of the block excavation at 41DT80, a small bulldozer was used to scrape an area of ca. 259.5 m² (851.4 ft²) around the top of the rise and the block excavation. The top of the rise itself could not be removed due to the presence of several moderately sized trees in this area, but the backhoe was used to expand out from the original north-south trench in several directions to uncover features. Following bulldozing, the area around the block was smoothed with a box scraper pulled behind a small tractor and then hand-hoed in search of cultural features. When a feature was located, it was cleared, flagged, shot in with a transit, and sectioned and recorded in the same fashion as those excavated within the block.

The archaeological investigations at the Thomas site (41DT80) during 1987 resulted in the recovery of over 11,000 cultural artifacts and more than 27,000 g of nonartifactual material. Forty-nine features, including pits, postholes, and hearths, were identified and recorded both inside the block and in the scraped area. Two additional pits were identified in the east wall of the backhoe trench but were not sampled due to time constraints. Four additional prehistoric burials were identified and excavated during this season, one of which consisted of two individuals; including both flexed and extended burials and immature and adult individuals.

STRATIGRAPHY

The stratigraphy of the Thomas site, as exposed in both the excavation block and the backhoe trench to the

north, consisted of a silty loam A horizon overlying a silty clay grading to clay B horizon. Primary-deposited cultural material appeared to be confined to the A horizon. Some material in the B horizon presumably accumulated through the action of downward displacement. The thickness of the A horizon varied across the top of the rise and even slightly within the limits of the block excavation. The shallowest exposure was noted north of the rise, apparently beyond the limits of cultural occupation, where the A horizon was only about 6-7 cm (2.4-2.75 in) thick (Figure 6-6). The A horizon was deepest at the center of the rise in areas apparently undisturbed by feature excavation, where it was as much as 62 cm (24.4 in) thick. In the less disturbed block unit, the A horizon was consistently shallower, varying from about 38 cm (15 in) in the northwest corner to as little as 18-20 cm (7.1-7.9 in) on the east side.

Throughout most of the excavation block, the A horizon could be subdivided into two zones. The upper zone seemed to consist of a very dark brown to dark brown (10YR2/2 to 3/3), hard and compact silty loam, ca. 7-16 cm (2.75-6.3 in) thick. This occurred throughout the entire block and appeared to be generally homogeneous in texture with little mottling. This was presumably a modern soil development. Below this, varying from about 11-24 cm (4.3-9.4 in) in thickness, was a layer of brown and dark brown to grayish brown (10YR4/3 to 5/2) silty loam. This zone was softer and more mottled with burned clay, charcoal, and shell than that above it. No evidence of internal structuring was noted in this matrix over most of the block, except on the northwest, where the area over Feature 48, a possible hearth, showed more ash and a lighter color (pale brown - 10YR6/3). This zone, and the one above it, are presumed to be of cultural origin, since Feature 48 was buried by their accumulation (see below). Below these cultural levels was what appeared to be a transition zone of brown or dark brown to dark yellowish brown (10YR4/3 to 4/4) silty loam grading to a light yellowish brown (10YR6/4) silty clay and clay with heavy carbonate inclusions. These latter zones both apparently belong to the B horizon with the upper one possibly being an old ground surface, given the location of Feature 48 on top of it.

Some lensing of what appeared to be redeposited B zone material occurred in the west wall of the north-south backhoe trench north of the block excavation. This disturbance was localized in the northwest area of the rise and decreased to the east: less lensing was noted in the east wall of the backhoe trench, and none in the profiles of Unit 141 placed over Burial 3 on top of the rise. Since a few pieces of historic material were found in this area of the rise, it was concluded that the lensing and disturbance in this area probably were due to some type of historic

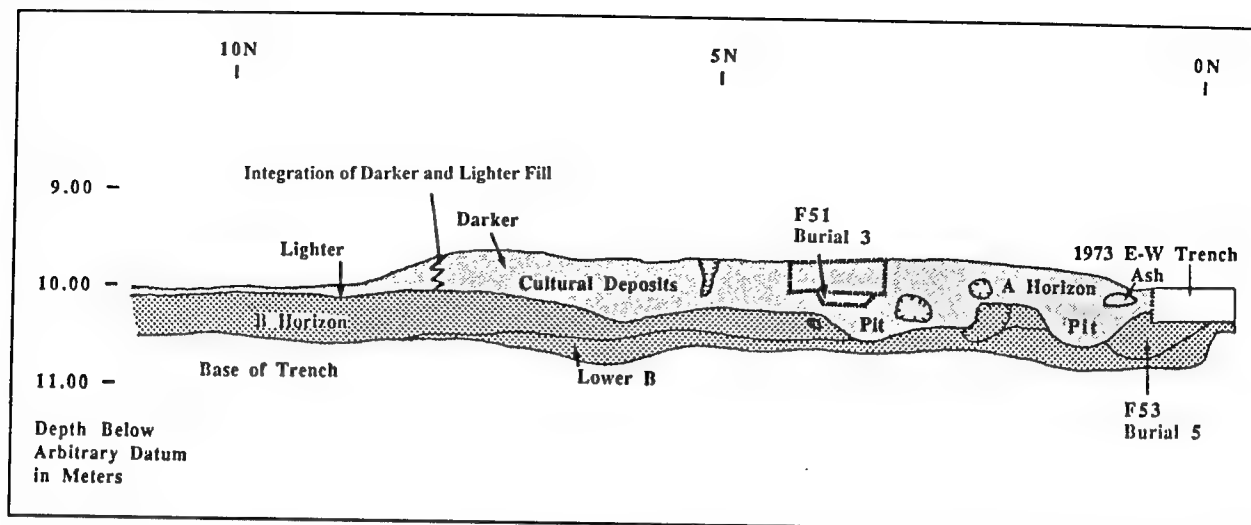


Figure 6-6. East profile of backhoe trench at 41DT80. (Note: Datum set at 10 m above ground level at south end of trench.)

modification to the northwest edge of the rise. None of the other profiles exposed by the 1987 investigations showed any evidence of deliberate mound construction in regard to the rise at 41DT80.

Two lines of evidence suggest that the cultural deposits at the Thomas site are due to the localized aggradation of a living area or "midden." The first involves the vertical locations of several features within the block excavation area. A number of features were found to overlap each other in the northwestern area of the block (Figure 6-7). The earliest of these was Feature 48, believed to have been a hearth built at or slightly below ground level on the old surface (see below for a more detailed description).

The apparent surface on which Feature 48 was constructed was the top of the transitional B zone at ca. -10.34 m (Figure 6-8). Intruding into Feature 48 were two pits, Features 43 and 45 (Burial 6). Both of these could be traced to the same general level, ca. -10.24 m, but no higher in profile. Feature 45 was in turn intruded into by yet another pit, Feature 12, which unfortunately was not identified higher than -10.27 m but which must have originated above -10.24 m in order for it to intrude into Feature 45. Feature 2 was a deep pit and could have originated from either this level or from the surface. In the approximate center of the block, a shallow hearth (e.g., Feature 3) was uncovered at the base of Level 1 (ca. -10.25 m); possibly originating from above. Taken together, the indications are strong that the area within the block at 41DT80 was aggrading while pits were being dug into it and hearths were being constructed on top of it.

The second line of evidence, indicating that the deposits at 41DT80 were the result of cultural aggradation concerns the relationship (or lack of it) between the ground surface and the top of the B horizon. Within the limits of the backhoe trench, the top of the B horizon remained relatively level, varying only from -10.10 m in the north to -10.19 m in the south (the lowest part of the top of the B horizon was at 5 m (16.4 ft) south of the north end of the trench with an elevation of -10.38 m). The ground surface (i.e., top of the cultural deposits) varied from only -10.04 m on the north to about -9.70 on top of the rise to -10.00 at the south end (see Figure 6-7). Within the confines of the block on the southern slope of the rise, the top of the B horizon varied from -10.27 to -10.33 in the northwest area, to -10.31 to -10.35 in the northeast, to -10.55 to -10.65 in the southeast; while the ground surface varied from only -9.93 in the northwest, to -10.15 on the northeast, to -10.30 on the southeast (Figure 6-9).

These figures show that the top of the B horizon was relatively level beneath much of the highest part of the rise, but sloped away gently to the east and more sharply to the south and southeast. The A horizon was thickest on top of the rise, but lensed out rapidly to the north, and less rapidly to the south and east with a noticeable thickening to the southeast. It is unclear how much of the modern ground surface was the result of forces of erosion, but what does seem certain is that the thickness of the A horizon was not due simply to normal soil development. Taking into account what has already been said about the vertical locations of features within the excavation block,

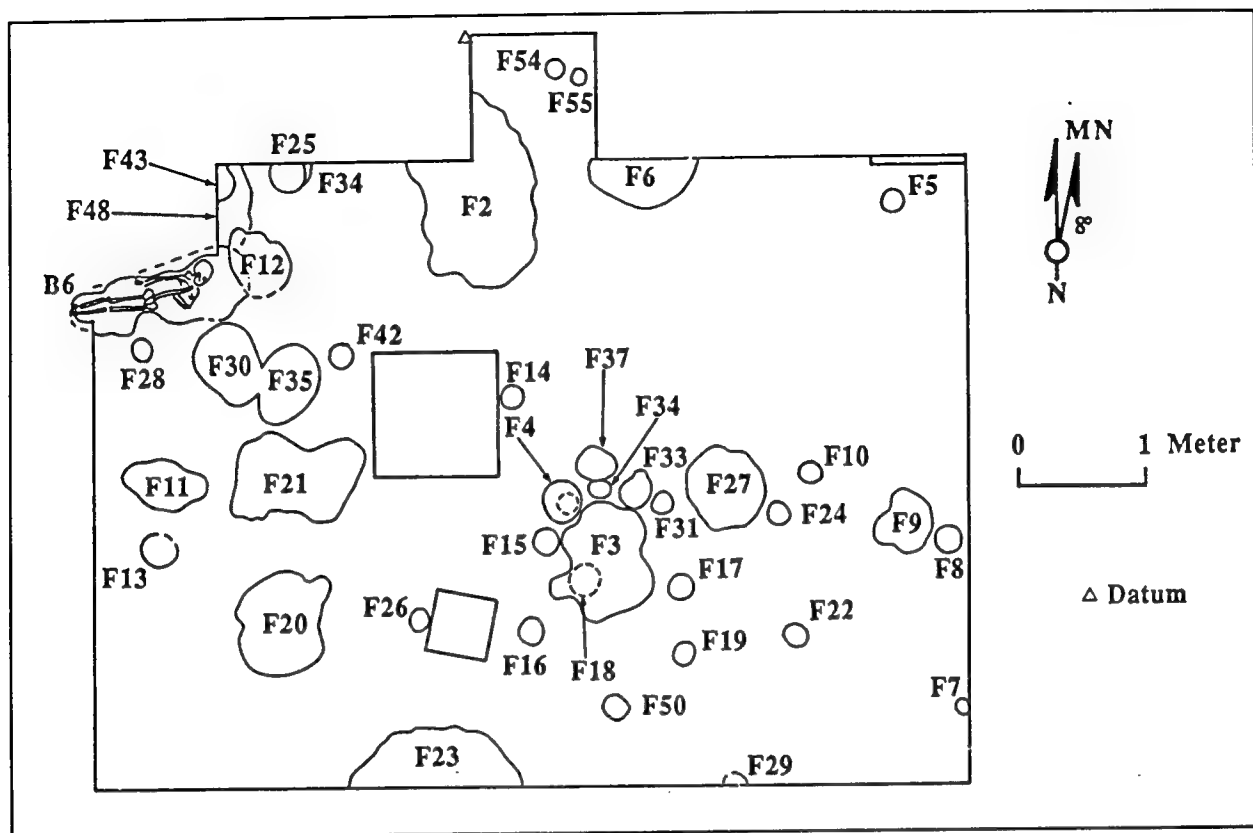


Figure 6-7. Location of features within the excavation block at 41DT80: the Thomas site. All following illustrations of this excavation will only highlight the specific type of feature being discussed.

the conclusion that the cultural deposits at 41DT80 were the result of gradual aggradation seems inescapable.

ARTIFACT ASSEMBLAGE

A large amount of artifactual and nonartifactual material was recovered from the testing and excavations at (41DT80) during the 1987 field season (Table 6-3). This material is tabulated by frequency for the artifacts (e.g., points, bifaces, unifaces, flakes, cores, sherds, and fire-cracked rock), and by weight (grams) for the nonartifactual material (e.g., baked clay, bone, shell, and charcoal). In the following sections, lithic material, ceramics, and bone tools all are discussed separately. The subsequent section on subsistence resources discusses the faunal (e.g., bone and shell) and macrobotanical remains recovered from the Thomas site and their implications for economy and subsistence at the site.

The section on lithic tools presents descriptions of first, the dart points; then the arrow points, bifaces (both tools and aborted bifaces); and finally the unifacial tools. They have been sorted into type-classes on the basis of various morphological criteria that are discussed in each

individual type-class. In some cases, these type-classes are virtually identical to widely accepted artifact types, while in other cases they are not. At this stage of the Cooper work, all these type-classes must be considered preliminary and subject to revision with additional information. Metric data such as computer printouts and raw data are on file at SMU. Several references used in regard to lithic tools and their raw materials include Banks (n.d.); Johnson (1962); Suhm and Jelks (1962); and Turner and Hester (1985).

Lithic Tools

Dart Points

Yarbrough-like (1 specimen; Figure 6-10a). This specimen has what appears to be an impact fracture on the blade, weakly barbed shoulders, and a slightly expanding stem with ground edges and a straight base. Material: fine quartzite. Provenience: 103.5.

Gary, Weak Shouldered Variety (8 specimens; Figure 6-10b,c). These points all are characterized by the

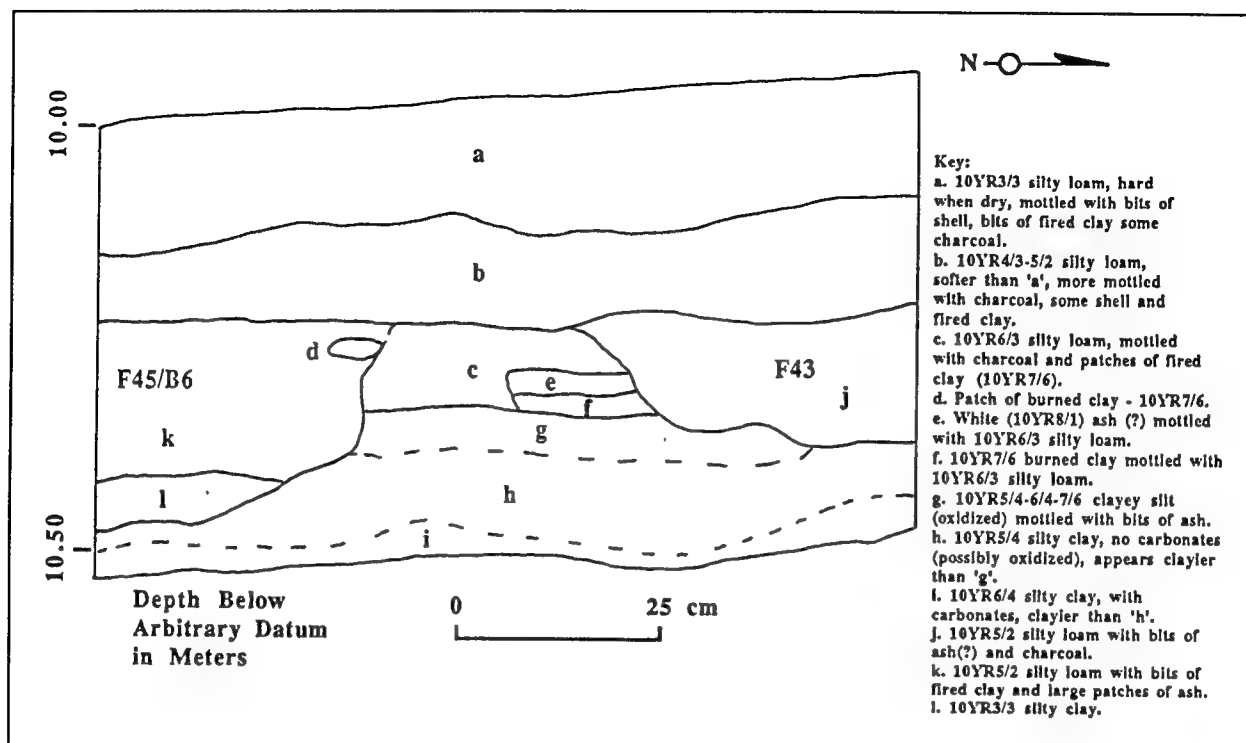


Figure 6-8. West profile of Unit 106 showing midden stratification.

triangular blade and contracting stem typical of the Gary type, but also are characterized by weakly barbed or asymmetrical shoulders. In regard to the degree of shoulder development, they are very similar to Johnson's Hobson variety (1962:163) and would probably fall within the range of variation of Schambach's Camden variety (1982:176). Material: coarse quartzite (1), fine quartzite (5), chert (2). Provenience: 103.1, 107.1, 111.1, 112.1, 122.1, 124.1, 126.1, Feature 14.

Gary, Tanged Stem Variety (1 specimen; Figure 6-10d). This specimen had a long triangular blade, strongly developed barbed shoulders, and a long, thin and pointed, contracting stem. It appears very similar to Johnson's Runge variety, although the ratio of stem to blade length does not match Johnson's description (1962:164). The thin, pointed stem on this specimen also would appear to place it with Schambach's LeFlore variety (1982:174). Material: fine quartzite. Provenience: Scraped Area.

Gary, Unspecified Varieties (11 specimens; Figure 6-10e-g). These specimens are all characterized by the contracting stem of the Gary type, and where the blade is present, it is always triangular. Several have cortex left on the base of the stem. The shoulders are all well developed and some have quite prominent barbs. They include both short, broad blades and narrower, longer blades and it is

expected that this group will eventually be subdivided into several varieties. Material: coarse quartzite (1), fine quartzite (8), chert (1), Red River chert (1). Provenience: Surface, Backhoe Trench, 103.1, 108.1, 110.3, 129.1, 131.1, 135.1, 137.1, 137.2, Burial 3.

Untyped, Rectangular Stem (1 specimen). This specimen consists only of a fragment of a straight stemmed dart point. The fragment is well made, with straight sides and a straight base. The point where the sides join the base forms a sharp, almost right angle. One side shows evidence of grinding. Material: fine quartzite (1). Provenience: 113.3.

Untyped, Large Blade (1 specimen; Figure 6-10h). This large point is broken at the stem and is untypeable, but is large and well made. The blade is long and triangular with straight sides, a slightly serrated edge caused by careful chipping, and alternate beveling. The shoulders are well developed and barbed, and the preserved portion of the stem appears to be contracting. Material: Red River Yellow Siltstone. Provenience: 120.1.

Untyped, Small Blade (2 Specimens; Figure 6-10i). These two specimens are characterized by small, moderately well made triangular blades with broken or poorly made stems. One specimen has prominent

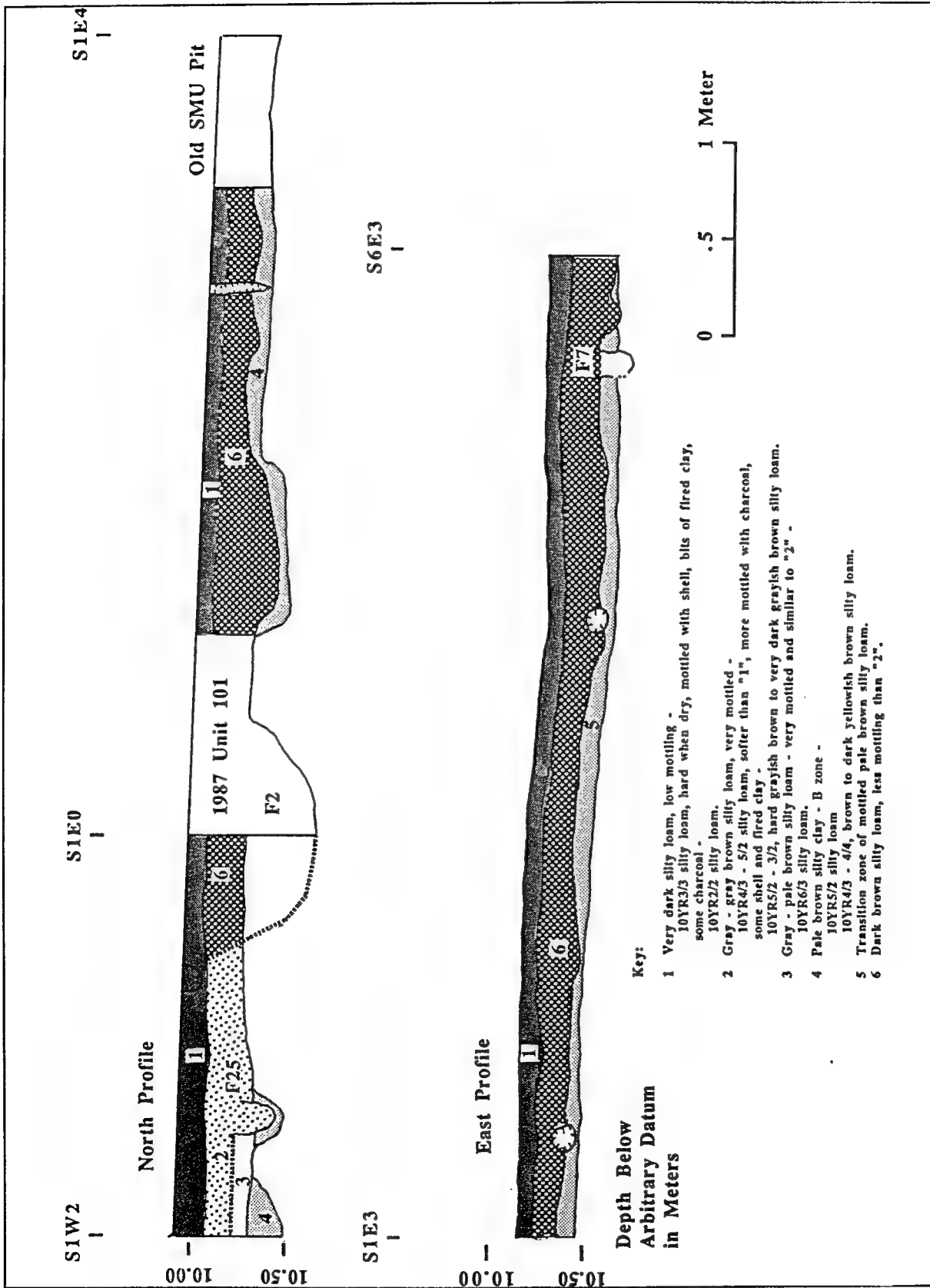


Figure 6-9. North and east profiles of block excavation at 41DT80: the Thomas site.

TABLE 6-3
Cultural Material From 1987 Testing And Excavations at 41DT80

Unit Level	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Ground & Battered Stone	Ceramic	Baked Clay ¹	Bone ¹	Shell ¹	Charcoal ¹	Burned Rock
Surface	3	—	—	—	—	—	4	—	—	—	—	—
101	—	—	—	7	—	—	1	17	56	26	—	15
102	1	2	—	17	—	—	—	20	54	41	3	24
103 ²												
Surface	—	—	—	—	—	—	1	—	—	—	—	—
1	2	—	—	27	—	—	2	38	33	24	—	31
2	—	1	1	22	—	—	3	33	65	43	6	40
3 North	—	—	—	7	—	—	—	25	22	9	—	20
3 South	—	—	—	16	—	—	1	47	18	22	2	19
4	—	—	—	30	1	—	1	22	53	66	2	30
5	1	—	—	4	—	—	1	—	16	4	—	7
Fea 2	—	—	—	3	1	—	—	46	65	34	39	8
104												
1	1	7	2	34	—	—	29	59	63	21	—	80
2	—	3	2	19	—	—	3	115	159	111	4	94
3	—	1	1	14	1	—	2	66	81	90	2	57
4	—	2	2	3	—	—	1	18	25	4	—	20
105												
1	—	—	—	16	—	—	3	13	26	9	—	36
2	3	—	1	10	—	1	—	36	39	28	2	21
3	2	—	—	18	—	—	—	32	32	30	2	21
106												
1	—	2	3	26	—	—	4	27	19	2	3	35
2	1	—	—	10	—	—	—	69	97	44	2	28
3	1	2	2	13	—	—	3	156	150	127	9	75
107 ³												
1	2	2	1	50	—	—	5	46	31	14	1	61
2 ³	—	—	—	—	—	—	—	—	—	—	—	—
3	2	—	2	13	—	—	—	36	30	52	2	26
108												
1	3	6	4	43	—	—	17	76	41	25	—	102
2	1	2	—	13	—	—	3	70	58	72	—	34
3	1	1	2	20	—	—	—	82	78	69	1	44
109												
1	1	4	—	21	—	—	4	19	—	—	—	30
2	—	—	—	21	—	—	4	81	72	46	3	68
3	1	—	2	24	—	—	1	42	64	52	3	17
110												
1	2	2	4	28	1	—	4	73	60	25	1	42
2	1	—	1	6	—	—	1	18	22	17	—	19
3	2	—	3	15	—	—	—	44	35	20	1	20
111												
1	2	—	1	19	—	—	6	37	68	35	—	75
2	—	2	1	17	—	—	1	60	63	32	1	45
3	1	—	3	27	1	—	—	6	28	16	4	8

Table 6-3 (cont.)

Unit	Level	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Ground & Battered Stone	Ceramic	Baked Clay ¹	Bone ¹	Shell ¹	Charcoal ¹	Burned Rock
112	1	6	3	1	35	—	—	12	36	19	2	—	68
	2	1	1	—	13	2	1	2	153	87	40	12	54
	3	—	3	1	13	—	—	3	—	—	85	—	25
	4	1	1	2	6	—	—	1	48	24	28	2	4
113	1	4	3	—	36	1	—	3	47	17	1	1	54
	2	—	2	1	10	—	—	3	3	37	21	—	15
	3	1	2	—	18	—	1	3	72	80	66	1	27
115	1	2	3	4	15	1	—	7	71	50	28	—	82
	2	—	—	1	21	—	—	—	61	94	64	1	37
	3	1	1	1	12	—	—	—	40	46	99	2	120
116	1	2	2	2	32	—	—	7	77	61	35	—	95
	2	—	—	1	23	—	—	2	54	81	53	1	50
	3	—	1	1	25	—	—	—	25	20	15	1	13
117	1	2	3	1	57	1	—	7	64	62	59	2	109
	2	1	1	2	12	—	1	3	16	48	35	—	26
	3	—	1	—	14	1	—	—	5	6	5	2	4
118	1	5	5	2	38	1	—	15	77	54	45	1	23
	2	—	6	3	13	—	—	2	78	72	75	2	59
	3	—	—	1	9	—	—	—	—	41	30	—	28
119	1	—	2	2	40	—	—	4	88	65	52	31	85
	2	—	—	—	17	—	—	2	65	52	40	5	40
	3	—	1	2	5	—	—	—	46	—	44	2	11
120	1	2	3	8	10	—	—	5	50	83	12	—	57
	2	—	1	1	13	—	—	3	8	68	62	3	81
	3	1	2	—	13	—	—	1	112	73	93	2	62
122	1	4	2	—	32	—	—	6	77	51	66	—	94
	2	1	—	2	20	—	—	1	143	68	86	1	44
	3	—	—	—	5	—	—	1	31	50	22	1	17
123	1	6	4	3	37	—	1	7	93	68	30	1	151
	2	—	2	2	18	—	—	2	202	106	77	1	46
	3	1	—	1	23	—	—	—	73	64	43	4	26
124	1	2	2	2	41	—	—	10	88	86	54	1	110
	2	2	—	1	12	—	—	1	71	97	70	1	70
	3	3	2	1	25	—	—	1	92	134	84	1	61
125	1	5	2	7	16	1	—	5	195	95	82	3	124
	2	2	2	2	31	1	—	6	120	110	89	2	89
	3	—	2	—	11	2	—	2	105	63	94	2	80

Table 6-3 (cont.)

Unit	Level	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Ground & Battered Stone	Ceramic	Baked Clay ¹	Bone ¹	Shell ¹	Charcoal ¹	Burned Rock
126	1	3	7	3	23	—	—	10	65	35	12	—	79
	2	1	1	—	8	—	—	1	80	107	107	6	54
	3	—	1	—	14	—	—	2	64	53	25	3	23
127	1	—	2	2	25	1	—	3	38	15	4	—	51
	2	—	1	1	10	—	—	3	121	85	72	1	53
	3	3	—	2	15	—	—	1	111	84	70	1	30
128	1	2	2	3	15	—	—	4	80	65	26	2	78
	2	—	2	3	19	1	—	5	108	75	102	4	62
	3	1	2	2	20	—	—	4	129	73	91	3	50
129	1	3	5	3	36	—	—	10	119	65	48	1	88
	2	2	1	—	30	—	—	—	100	25	58	1	33
	3	—	—	1	17	—	—	1	75	47	33	2	27
130	1	3	4	6	44	—	—	14	88	62	75	—	138
	2	2	1	—	13	—	—	3	110	140	72	2	74
	3	—	1	1	17	—	—	2	91	27	26	5	25
131	1	4	1	3	32	—	—	10	103	13	37	—	17
	2	3	2	1	10	—	1	2	125	168	112	1	115
	3	—	2	1	13	—	—	3	53	162	60	1	39
132	1	1	1	2	28	—	—	5	91	110	66	—	61
	2	1	2	1	13	1	—	9	176	141	101	1	84
	3	—	1	3	16	3	—	1	118	45	49	3	36
133	1	2	4	—	27	—	—	7	38	26	5	—	77
	2	1	1	4	16	—	—	12	116	104	56	1	89
	3	—	—	2	12	1	—	1	61	80	41	1	59
134	1	2	1	3	26	—	—	14	73	30	12	—	95
	2	—	3	2	26	1	—	5	110	76	95	1	83
	3	—	1	1	19	—	—	4	100	222	78	1	56
135	1	4	—	4	21	—	—	6	50	51	15	—	85
	2	—	1	1	23	—	—	6	148	149	112	1	82
	3	—	2	2	19	—	—	4	125	91	108	1	41
136	1	—	4	5	29	—	—	15	140	114	43	1	120
	2	—	4	2	12	—	—	4	130	130	123	1	62
	3	—	1	1	12	—	—	—	101	58	94	4	38
137	1	2	4	8	48	1	—	22	125	98	59	1	160
	2	3	2	3	21	2	—	10	197	173	146	2	110
	3	—	—	—	3	—	—	1	48	25	36	1	27

Table 6-3 (cont.)

Unit Level	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Ground & Battered Stone	Ceramic	Baked Clay ¹	Bone ¹	Shell ¹	Charcoal ¹	Burned Rock
138												
1	—	1	4	39	—	—	28	108	63	53	1	170
2	1	—	1	13	—	—	5	168	103	89	1	117
3	—	1	—	9	—	—	7	112	144	109	1	70
139												
1	—	3	3	34	1	—	22	65	115	34	—	110
2	2	3	1	24	—	—	6	191	149	94	3	104
140												
1	1	2	4	19	—	—	6	53	36	8	—	57
2	2	1	1	10	1	—	1	62	48	36	—	19
3	1	—	1	10	—	—	—	62	18	34	—	17
141												
1	1	3	9	50	—	—	14	67	25	—	—	77
2	—	2	4	14	—	—	6	49	3	18	2	28
3	—	1	2	25	1	—	17	97	53	1	—	54
127/134												
Below 3	1	—	—	—	—	—	—	—	—	—	—	—
Backhoe Trench	1	—	—	—	—	—	2	—	2	—	—	—
Machine Scraping	1	—	—	—	—	—	6	—	88	—	—	1
Subtotal	143	188	202	2,363	30	6	556	8,756	7,826	5,841	243	6,618
Testing	8	16	8	203	3	—	49	506	710	495	58	445
Features	12	17	18	415	8	—	36	2,057	1,462	822	523	686
Total	163	221	228	2,981	41	6	641	11,319	9,998	7,158	824	7,749

¹ Baked clay, bone, shell, and charcoal are enumerated in grams; all other categories are enumerated in counts.

² Levels 1 and 2 mixed with backfill of SMU's old East-West Trench, Level 3 North consists entirely of this disturbed fill.

³ Material lost due to field or laboratory transcription error, probably catalogued as Unit 107, Level 3.

shoulders with a short, poorly made contracting stem which is not within the range of variability for the Gary type. The second specimen is shorter, with one straight blade edge with a well barbed shoulder, and one weakly barbed convex blade edge. The stem on this specimen was either originally short and poorly made, or broken. Material: coarse quartzite (1), Big Fork Chert (1). Provenience: 105.3, 134.1

Untyped, Fragmentary (2 specimens). Thin blade fragments, one very well made. Material: fine quartzite. Provenience 115.1, 118.1.

Arrow Points

The vast majority of the arrow points recovered from the Thomas site during the 1987 excavations consisted of a class of points characterized by serrated blades. Most of these could probably be typed as Steiners, but they encompass a wide variability in regard to length, width, and stem form. Some degree of serration is always present and sets this class apart from the other arrow points at the Thomas site. They have been subdivided into preliminary types on the basis of stem form.

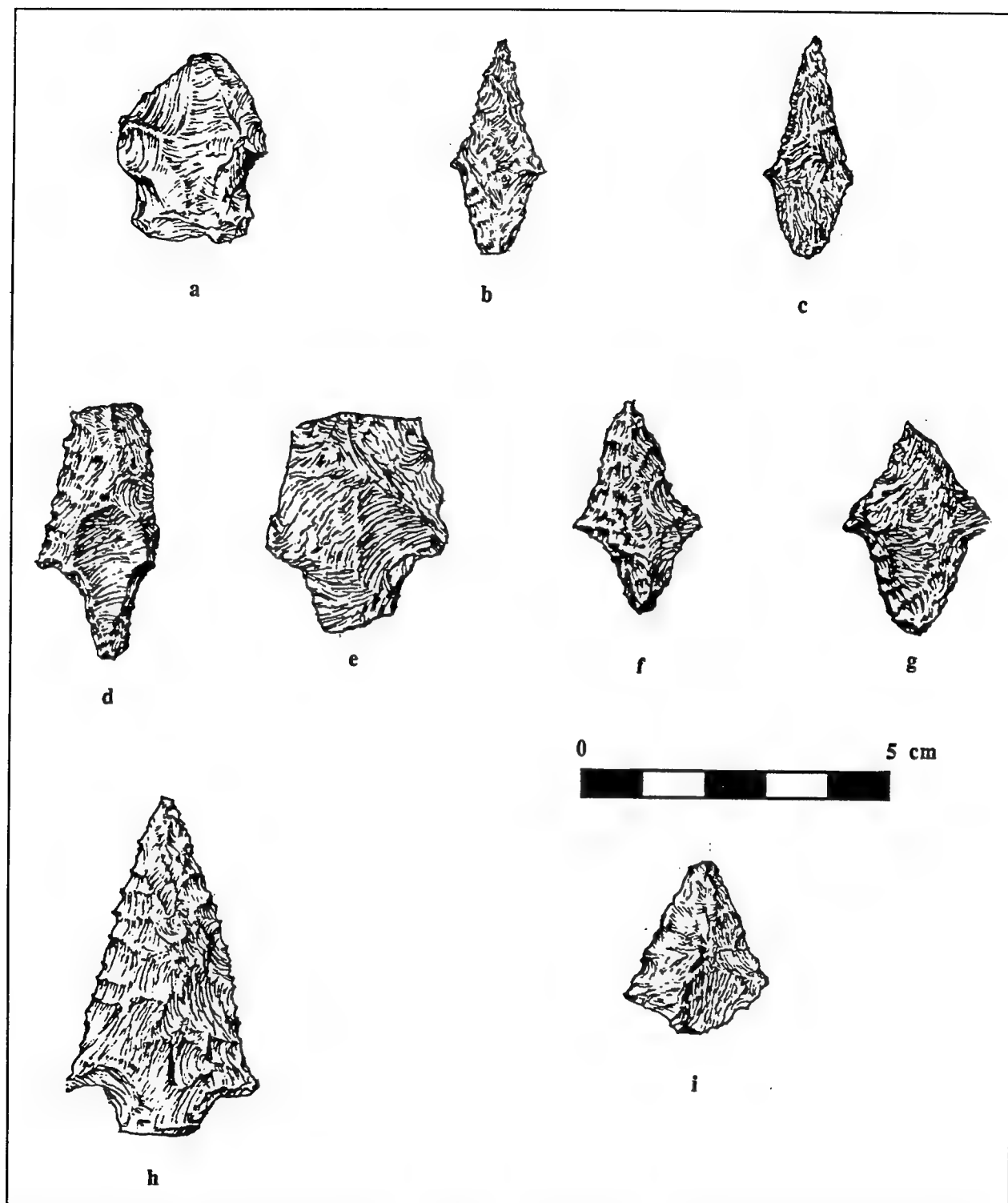


Figure 6-10. Projectile points (dart points) from 41DT80: the Thomas site; (a) Yarbrough-like, (b and c) Gary Weak Shouldered, (d) Gary Tanged, (e-g) Unspecified Gary, (h) Large Blade, and (i) Small Blade.

Serrated, Rounded Stem (23 specimens; Figure 6-11a). The stem form associated with this type consists of

relatively straight sides with a rounded, convex base. The blades vary in length, but all are serrated, ranging from

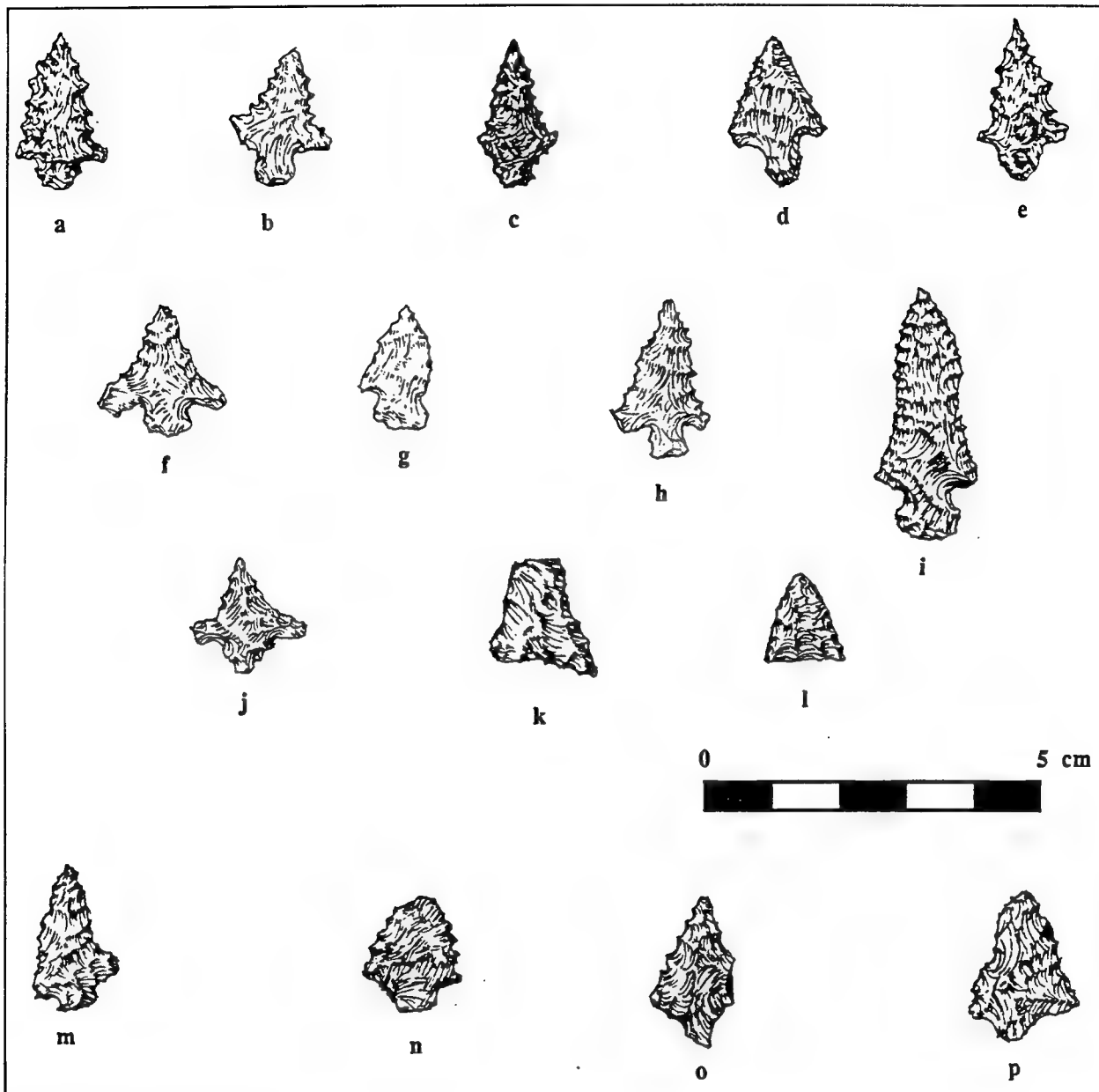


Figure 6-11. Projectile points (arrows) from 41DT80: the Thomas site; (a-e) Untyped serrated, (f) Catahoula, (g) Scallorn, (h) Alba, (I) Homan, (j) Friley, (k) Talco, (l) Fresno, (m-p) Untyped.

fine to deep serrations. On several, the shoulders are very well developed, and turn up toward the distal end in the manner of the Friley type. Material: fine quartzite (22), chert (1). Provenience: 102.1, 108.2, 108.3, 110.1, 111.3, 112.1 (2), 112.4, 113.1 (2), 115.1, 118.1, 123.1, 124.2, 125.1, 127.3, 130.1, 132.1, 134.1, 140.1, 140.2, 140.3, Feature 2.

Serrated, Bulbar Stem (16 specimens; Figure 6-11b). This group of points is characterized by stems which

expand slightly below the shoulders and then curve around to a convex and rounded base with little or no abrupt break in the curve. They differ from the rounded stem type in having expanded stems, but differ from the expanded type in having the unbroken curve between side and base. Blade serrations include both fine and deep serrations, while three are characterized by one shoulder which turns up and one has both shoulders turning up. Material: coarse quartzite (1), fine quartzite (15). Provenience: 106.3, 107.1, 107.3, 109.3, 111.1, 112.1,

123.1, 126.1, 129.1, 130.1, 131.2 (2), 133.1, 135.1, 139.3, 141.1.

Serrated, Expanding Stem (6 Specimens; Figure 6-11c). Like the previous type, these specimens have expanding stems and convex bases, but the point where the side of the stem and the base meet is characterized by a sharp angle, which is lacking in the Bulbar Stem type. The blades vary from short to long, and the serrations are generally weakly developed. None of these specimens has the type of flaring shoulders typical of the Friley type and in this sense are more characteristic of the classic Steiner form. Material: fine quartzite (6). Provenience: 105.2 (3), 110.1, 110.2, 117.2.

Serrated, Rectangular Stem (6 specimens; Figure 6-11d). These specimens are characterized by straight or slightly flaring stem sides, and straight or concave stem bases. The shoulders do not flare a great deal and the blades are serrated to varying degrees. They would probably fall within the classic definition of the Steiner type, as does the previous type-class. Material: fine quartzite (6). Provenience: 112.1 (2), 124.1, 124.3, 130.2, 132.2.

Serrated, Contracting Stem (8 specimens; Figure 6-11e). These specimens can be identified by their wide, contracting stems and rounded bases. To a great extent, the stem of this type resembles a small version of the Gary type stem, but the stems on these arrow points are generally about one-quarter to one-third as long as the length of the blades. With only two exceptions, the shoulders of these specimens flare outward, in keeping with the definition of the Steiner type (lacking only the distal upturn). Material: fine quartzite (8). Provenience: 107.3, 116.1, 118.1, 123.3, 125.1, 128.1, 129.1, 130.1.

Catahoula (9 specimens; Figure 6-11f). This group includes specimens which have both serrated and unserrated blades, although the unserrated blades still have an irregular flaked edge which give them the appearance of being serrated. The diagnostic characteristic of these specimens is their widely flaring shoulders with squared off barbs. The stems usually flare with straight or convex bases, although they can have rounded or contracting stems. Material: coarse quartzite (1), fine quartzite (8). Provenience: 108.1, 109.1, 113.1, 115.3, 116.1, 118.1, 122.1, 123.1, 124.2.

Scallorn (7 Specimens; Figure 6-11g). These specimens all have unserrated blades, with either straight, convex, or concave edges, and expanding stems. Shoulders are well developed but not well barbed. The

expanding stems may be narrow or wide, with both straight and convex bases. All of these would probably fall within the range of variation for the Scallorn type. Material: fine quartzite (7). Provenience: 112.4, 120.3, 124.3, 129.2, 131.1, 138.2, Feature 23.

Alba (3 specimens; Figure 6-11h). These three specimens have straight edged, triangular blades with well developed shoulders (two are well barbed). The stems are straight sided with convex bases and include both narrow and wide forms. All three are very well made on flakes and are plano-convex in cross section, with blades which are almost entirely unifacially worked. These three specimens would appear to fall within the variability of the Alba type. Material: fine quartzite (3). Provenience: 123.1, 129.2, Feature 20.

Homan (2 specimens; Figure 6-11i). These two specimens are similar in having a recurved edge on the blade and an expanding stem. One is well made, with a long blade and a pointed tip. The shoulders on this specimen are flared and barbed. The base is expanding and fan shaped with rounded corners and a convex base. It seems to be well within the range of variability for the Homan type. The other specimen is less well made, with one recurved edge and one serrated edge on a short blade. One shoulder is well flared and barbed, while the other is not. The stem is flaring, but very short, with a shallow convex base. Whether or not the specimen is Homan type is questionable. Material: fine quartzite (2). Provenience: 118.1, 128.3.

Friley (2 specimens; Figure 6-11j). Both of these specimens are characterized by poor workmanship; deeply concave blades; widely flaring shoulders which project at right angles from the blade; and short, contracting stems and pointed bases. Their stem forms place them outside the classic definition of the Friley type, but they are definitely related to that type. Material: fine quartzite (2). Provenience: 118.1, 128.3.

Talco (1 specimen; Figure 6-11k). This specimen is triangular with a concave base. Although the tip is broken off, the blade appears to have been recurved, giving the two basal corners a flared appearance. This specimen seems to fall well within the range of variability of the Talco type. Material: fine quartzite. Provenience: 122.1.

Fresno (1 specimen; Figure 6-11l). This is a very small, triangular point with a slightly concave base. The sides appear to be slightly worn or ground down while the base is still sharp and unworn. In form it is well within the range or variability for the Fresno type, but it appears to

be rather small for a classic Fresno, being only 13 mm in length. Material: fine quartzite. Provenience: 125.1.

Untyped, Rectangular Stem (5 specimens; Figure 6-11m,n). These are all extremely poorly made, asymmetrical points. They show a wide range of variation in regard to blade form, but they are all characterized by a short, wide rectangular stem. The stem form and the overall roughness and irregularity of the workmanship sets this type apart from all previous types. These would probably fall within the range of what Johnson (1962:250) has defined as the Minter type at the Manton Miller site. Material: fine quartzite (5). Provenience: 106.2, 125.2, 128.1, 130.2, 131.2.

Untyped, Contracting Stem (7 specimens; Figure 6-11o,p). These specimens all are characterized by poor workmanship; irregular and asymmetrical blade form; and short, asymmetrical contracting stems. They would appear to be similar to points described by Johnson (1962:250) as Type X at the Manton Miller site. Material: coarse quartzite (1), fine quartzite (6). Provenience: 105.3, 108.1, 125.1, 125.2, 126.1, 135.1, Feature 23.

Untyped, Rounded Stem (1 specimen). This specimen consists of the complete stem with part of the blade of an arrow point. The stem is straight sided with a rounded, convex base. Not enough is left of the blade to determine whether or not it was serrated or straight edged. Material: fine quartzite, burned (1). Provenience: Feature 3.

Untyped Serrated, Fragmentary (20 specimens). These specimens are all broken blades or blade fragments showing evidence of some degree of deliberate serration. Material: fine quartzite (18), chert (1), silicified wood (1). Provenience: Surface, 104.1, 110.3, 113.1, 117.1, 122.2, 124.3, 125.1, 129.1, 131.1 (2), 133.2, 135.1, 137.1, 137.2 (2), 139.2, 140.2, Feature 9, Feature 23.

Untyped Nonserrated, Fragmentary (11 specimens). These specimens are all small to moderate sized blade fragments from unserrated points. Material: fine quartzite (11). Provenience: Surface, 112.1, 117.1, 123.1 (2), 126.2, 127.3 (2), 133.1, Feature 11 (2).

Finished Bifaces

Gouges (6 specimens; Figure 6-12a,b). These are all small, triangular tools with a convex working edge or bit on one edge. The bit may vary from being bifacially worked equally on each face, to being almost entirely unifacially worked with only minimal working on the other face. The other two edges show minimal bifacial

retouch, and sometimes none at all. These are not classifiable as Clear Fork due to different results from working with quartzite. Material: fine quartzite (6). Provenience: 104.3, 110.1, 112.3, 118.2, 123.2, 130.2.

Drill/Awl (3 specimens; Figure 6-12c,d). These specimens are all characterized by a long, very narrow bifacially worked blade. The bases of two specimens are formed by the unworked portion of the flakes from which they were made. The third shows a bifacially worked base with a straight sided, convex base and shoulder tang. Material: fine quartzite (3). Provenience: 102.1, 106.3, 118.2.

Large Bifacial Knife (1 specimen; Figure 6-12e). This specimen consists of a blade fragment from a large, well made biface. Although there is a bit of cortex left on the tip, the blade is well thinned and uniform, with an edge which has been carefully straightened and shows some evidence of use wear. The remaining portion of this tool suggests the complete piece was leaf shaped. Material: fine quartzite (1). Provenience: 129.1.

Small Bifacial Knife (2 specimens; Figure 6-12f). These two specimens are small bifaces with pointed tips and convex bases. They are too small to be dart preforms, and too large to be arrow preforms, and show careful finishing and straightening on at least one edge. They also show some evidence of use wear. Material: coarse quartzite (1), fine quartzite (1). Provenience: 104.2, 108.2.

Bifacial Graver (1 specimen; Figure 6-12g). This specimen is a flake tool characterized by the formation of a small spur by bifacial retouch. The spur shows some evidence of use wear on alternate faces. Material: fine quartzite (1). Provenience: 108.1.

Transverse Bifacial Scraper (1 specimen; Figure 6-12h). This is a small tool made on a flake. A well worn bifacial working edge occurs on the edge transverse to the axis of the flake, opposite the platform. The platform has been thinned and worked on either side to produce the beginnings of the stem. Material: fine quartzite (1). Provenience: 108.1.

Bifacial Endscraper (1 specimen; Figure 6-12i). This tool is made on a flake and has a straight, bifacially worked bit. Portions of the other edges of the piece are also bifacially worked, but the only systematic retouch is located on the bit. It differs from the gouges, described above, in being roughly rectangular in outline, with a straight working edge. Material: fine quartzite (1). Provenience: 110.1.

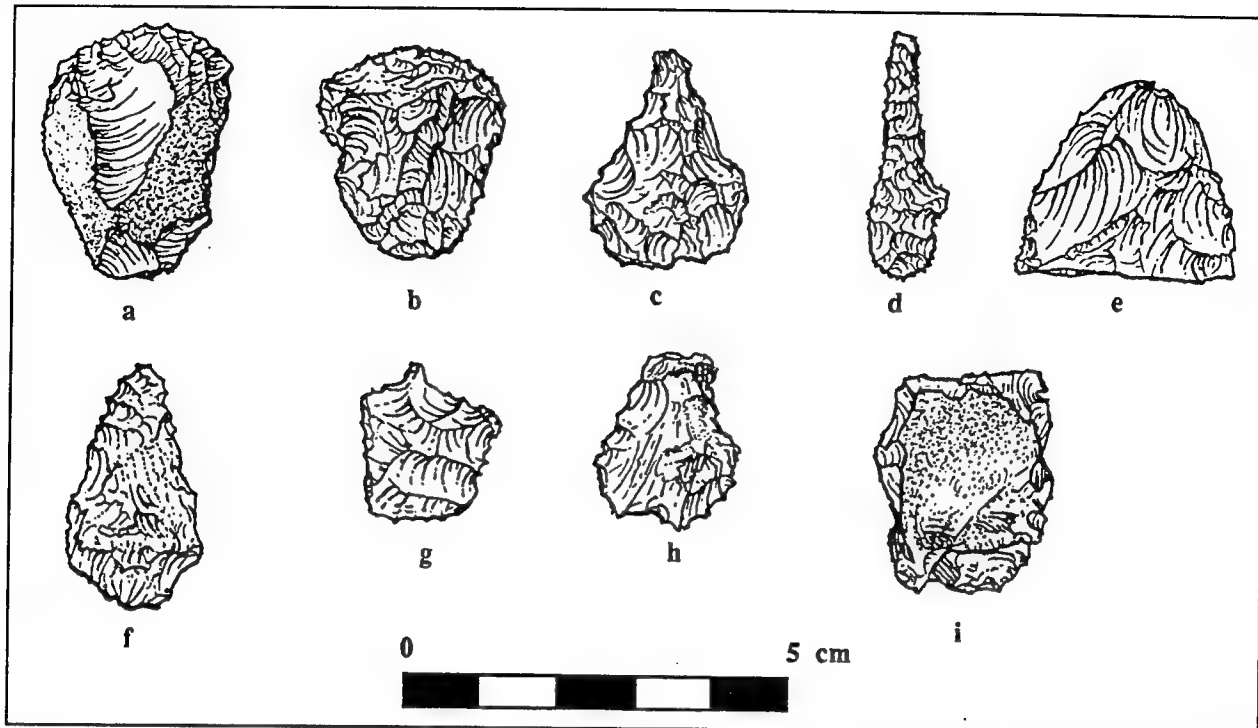


Figure 6-12. Bifacial tools from 41DT80: the Thomas site; (a-b) Gouges, (c-d) Drill/Awls, (e) Large Bifacial Knife, (f) Small Bifacial Knife, (g) Bifacial Graver, (h) Transverse Bifacial Scraper, (i) Bifacial Endscraper.

Aborted Large Bifaces

Early Stage (24 specimens). Most of these specimens are thick with irregular, sinuous edges. Most have over 75% cortex remaining and thick cross-sections with a generally unfinished appearance. These are usually larger than the late stage: 100 to 150% longer and 50% as wide. The sample includes both complete specimens with material flaws, and broken pieces. Material: coarse quartzite (8), fine quartzite (15), silicified wood (1). Provenience: 104.1, 104.4, 106.1, 112.4, 113.1, 115.1, 118.1, 123.1, 124.3, 125.1, 125.3, 130.1, 130.3, 131.2, 131.3, 132.2, 137.1 (2), 137.2, 139.1, 141.2, Feature 23, Burial 3, Burial 5.

Late Stage (15 specimens). These specimens are all thinner than those pieces characteristic of the early stage aborted bifaces by roughly one third. They are also more regular in outline with more carefully flaked, straighter edges. Despite this, the edges are still sinuous and show no fine retouch or use wear. Most are entirely lacking in cortex. Material: coarse quartzite (5), fine quartzite (10). Provenience: 115.1, 116.1, 117.1, 118.2, 120.1, 123.1, 126.3, 128.2, 134.1, 137.2, 139.2, 141.1, 141.2, Feature 23, Feature 31.

Aborted Small Bifaces

Early Stage (33 specimens). These are all small bifaces, most of which appear to be made on flakes, and are part of a reduction sequence separate from the large aborted bifaces listed above. They appear to be early stages in the production of arrow points or other bifacial flake tools. They are characterized basically by the same set of criteria as are the larger aborted bifaces, only they are smaller, with a lower proportion of cortex. Material: coarse quartzite (5), fine quartzite (28). Provenience: 108.2, 112.2, 112.3, 113.1, 113.2, 113.3 (2), 116.3, 118.1 (2), 118.2, 120.1, 120.3, 122.1, 124.1, 127.1, 128.3, 129.1, 134.2, 135.2, 135.3, 136.2, 136.3, 137.1, 138.1, 139.2, 140.1 (2), 141.1 (2), Feature 23, Feature 47, Burial 3.

Late Stage (61 specimens). These are what may be referred to as "arrow point preforms" since they apparently represent a late stage in the manufacture of such tools. They are thinner and more regular in outline, and have straighter edges than the early stage small aborted bifaces. Many are pointed distally with a convex rounded base. Nine show evidence of incomplete reworking into arrow points in the form of unfinished

blades, stems, or shoulders. Material: coarse quartzite (1), fine quartzite (58), rose quartzite (1), chert (1). Provenience: 102.1, 103.2, 104.1 (6), 104.4, 106.3, 107.1 (2), 108.1 (4), 108.3, 109.1 (3), 112.1, 112.3, 113.2, 115.3, 117.1, 119.1, 120.1, 123.1, 124.3, 125.1, 126.1 (3), 127.2, 128.1, 128.2, 129.1, 129.2, 130.1, 131.1, 131.2, 131.3, 132.1, 133.1 (3), 134.2 (2), 134.3, 135.3, 136.1 (4), 136.2, 137.1, 139.1, Feature 9, Feature 11, Feature 32, Feature 36.

Biface Fragments

These (57 specimens) are fragmentary pieces which exhibit at least one bifacially worked edge, but which cannot be classified with any degree of confidence in any of the above biface categories. Material: coarse quartzite (3), fine quartzite (53), chert (1). Provenience: 104.2 (2), 106.1, 109.1, 111.2 (2), 112.1 (2), 113.1, 115.1, 116.1, 117.1, 117.2, 117.3, 118.1 (2), 118.2 (2), 119.1, 119.3, 120.2, 120.3, 122.1, 123.1, 123.2, 124.1, 125.2 (2), 125.3, 126.1 (4), 126.2, 127.1, 128.1, 128.3, 129.1 (2), 130.1 (2), 132.2, 132.3, 133.1, 133.2, 136.2 (2), 138.3, 139.1, 139.2, 140.2, 141.3, Feature 9, Feature 23, Feature 32, Burial 4, Burial 5.

Steeply Chipped Unifaces

Endscraper (3 specimens). One of these specimens consists of a long flake with a steeply retouched straight edge on the distal end. The second is a small flake with a steeply retouched edge opposite the platform, with bifacial trimming on one lateral edge and unifacial retouch on the other. The third specimen has "scaled" retouch on a blocky chunk. The thickness and shape of the block gives it a rather "keeled" appearance. Material: fine quartzite (3). Provenience: 125.1, 137.1, 141.1.

Sidescraper (15 specimens). These all show steep, unifacial retouch on one or both lateral edges. Most of these are relatively small flakes and the length of the retouched edge is very limited. The only large piece is made on a block or core fragment but still has a very short retouched edge. Material: coarse quartzite (3), fine quartzite (11), chert (1). Provenience: 104.2, 104.4, 112.3, 116.1, 117.1, 118.1, 120.1, 124.3, 128.1 (2), 129.1, 130.1, 133.2, 139.3.

Scraper with Graver Spur (3 specimens). Two of these specimens are made on small flakes with a retouched edge combined with a graver spur on one end and a retouched edge (more marginally modified than steeply retouched) on the other. Material: fine quartzite (2), silicified wood (1). Provenience: 110.1, 120.1, 135.1.

Graver (3 specimens). These specimens consist of projecting spurs formed by the intersection of two steeply retouched notches or edges. Marginal retouch occurs on other portions of all three pieces. Material: fine quartzite (3). Provenience: 106.3, 125.1, 133.2.

Spokeshave (6 specimens). These specimens are all characterized by the presence of a steeply retouched concave surface or notch. Material: coarse quartzite (2), fine quartzite (4). Provenience: 107.1, 109.3, 115.1, 134.1, 136.1 (2).

Marginally Modified Pieces

Graver (10 specimens). These pieces are all characterized by a pointed tip or spur formed by the intersection of two marginally retouched edges. They are all made on medium to small flakes. Material: coarse quartzite (1), fine quartzite (8), silicified wood (1). Provenience: 106.1, 106.3, 108.3, 111.3, 123.2, 126.1, 134.2, 140.1, 140.3, Burial 5.

Denticulate (10 specimens). These specimens are marginally retouched pieces with an edge formed of several overlapping notches which have produced a series of three or more pointed "teeth". Material: fine quartzite (9), chert (1). Provenience: 106.1, 112.4, 120.1, 123.3, 128.2, 135.1, 140.1, Feature 23 (2), Burial 5.

Burin (3 specimens). These specimens all are characterized by the presence of a chisel-like edge formed by the intersection of a long narrow flake scar and a planar surface formed by a snap in two cases and the flake platform in the third. All three specimens show wear along the edge of one of these two intersecting surfaces. Two pieces show retouch on other edges, while one of these also has a small graver spur. Material: fine quartzite (2), Red River Yellow Siltstone (1). Provenience: 116.2, 137.1, 140.2.

Burin Spall (3 specimens). These are long, narrow flakes removed in the formation of the chisel edge on a burin. One spall shows retouch on the dorsal side of the flake, while the others show retouch on the ventral side. Both indicate they were used as tools in their own right and were not simply products of burin resharpening. Material: fine quartzite (3). Provenience: 108.1, 112.1, 124.1.

Concave Working Edge or Notch (28 specimens). These pieces all show a zone of regular marginal retouch along a concave working edge. Material: coarse quartzite (9), fine quartzite (18), chert (1). Provenience: 104.4,

110.1, 111.1, 117.2, 118.2 (2), 118.3, 120.2, 124.1, 125.1, 125.2, 127.2, 127.3, 128.2, 129.1, 131.1, 132.1, 132.3, 133.2, 134.2, 136.2, 137.2 (2), 141.2, Feature 6 (2), Burial 4.

Straight To Convex Working Edge (137 specimens). These specimens consist of various sized flakes which all are characterized by some degree of regular marginal retouch along one or more straight or convex edges. Irregular and light flake scars on many specimens have the appearance of being use wear. Material: coarse quartzite (22), fine quartzite (109), chert (3), silicified wood (2), siltstone (1). Provenience: 103.2, 104.1 (2), 104.2, 104.3, 105.2, 106.1, 107.3 (2), 108.1 (3), 108.3, 109.3, 110.1 (2), 110.2, 110.3 (3), 111.2, 111.3 (2), 112.4, 113.2, 115.1 (3), 115.2, 115.3, 116.1, 116.3, 118.1, 118.2, 119.1 (2), 119.3 (2), 120.1 (5), 122.2 (2), 123.1 (3), 123.2, 124.1, 125.1 (4), 125.2, 126.1 (2), 127.1 (2), 127.3, 128.1, 128.2, 128.3 (2), 129.1, 129.3, 130.1 (5), 130.3, 131.1 (2), 131.2, 131.3, 132.1, 132.2, 132.3 (2), 133.2, 133.3 (2), 134.1 (2), 134.3, 135.1 (2), 135.2, 135.3 (2), 136.1 (3), 136.2, 136.3, 137.1 (6), 137.2, 138.1 (4), 138.2, 139.1 (3), 139.2, 140.1 (2), 141.1 (8), 141.2 (3), 141.3 (2), Feature 3, Feature 6, Feature 23, Feature 36 (2), Burial 3 (2), Burial 5 (2), Burial 6.

Cores

Split Or Tested Nodules (5 specimens). One piece is a medium-sized cobble with a single flake removed from one battered end (the opposite is slightly battered as well). A second specimen also shows signs of battering and is split down the middle. The remaining three pieces are only fragments of cobbles and show no battering on the cortex surfaces. Materials: coarse quartzite (5). Provenience 112.3, 113.1, 133.3, Feature 47, Burial 6.

Freehand Percussion Cores

- a) Bifacial Platform (1 specimen). Material: fine quartzite. Provenience: 132.3.
- b) Cortex, Opposed Platform (1 specimen). Material: silicified wood. Provenience 127.1.
- c) Multifaceted Nodule (4 specimens). Material: fine quartzite (4). Provenience: 125.1, 128.2, 139.1, Burial 5.
- d) Prepared Platform (1 specimen). Material: fine quartzite. Provenience: 137.2.

Small Bidirectional Core (1 specimen). Material: fine quartzite. Provenience: Burial 3.

Core Fragment (25 specimens). Material: coarse quartzite (1), fine quartzite (24). Provenience: 103.4,

104.3, 110.1, 111.3, 112.2, 115.1, 117.1, 117.3, 118.1, 125.2, 125.3 (2), 132.2, 132.3 (2), 134.2, 137.1, 137.2, 141.2, 141.3, Feature 2, Feature 32, Burial 3(2), Burial 5.

Pecked And Battered Stone

Hammerstone (3 specimens). Two of these pieces are medium-sized while the third is much smaller. All exhibit the edge battering characteristic of this class of artifact. Material: coarse quartzite (3). Provenience: 112.2, 113.3, 131.2.

Grinding Slab/Pitted Stone (1 specimen). This large nodule is characterized by several flat surfaces which seem to exhibit some smoothing. These smoothed surfaces are on opposite sides of the block and generally surround an area of pitting. The pitted areas vary from being shallow and U-shaped in section, to deep and V-shaped, suggesting a multipurpose function for the slab. Material: sandstone. Provenience: 105.2.

Pitted Stone (1 specimen). This piece is a relatively small, palm-sized cobble with a flattened rectangular shape. The two largest surfaces, on opposite sides of the piece, each are characterized by the presence of a shallow pit; one of which is U-shaped in section, while the other is more V-shaped. Material: sandstone. Provenience: 117.2.

Abrader (1 specimen). This piece is an irregularly shaped cobble which exhibits three grooves on two separate surfaces. One surface shows a shallow linear groove which widens at each end and has some degree of smoothing. The second surface shows two parallel linear grooves, very deep and of uniform width but with no evidence of smoothing. Material: very coarse sandstone. Provenience: 123.1.

Ceramics

The ceramic assemblage ($n = 577$) excavated from the Thomas site during 1987 was sorted into preliminary type-classes on the basis of paste characteristics and surface treatment. In addition to the types described here, 236 untypable sherds were also recovered. These were generally categorized as too small, too corroded, or had no surface present. Ceramic pastes were distinguished for typed sherds largely on the basis of the coarseness of the fabric and temper, and have been used to identify preliminary ware distinctions. Paste and temper were subjectively identified, but generally correlate with three grades: (1) fine, under 1/16 mm diameter, (2) medium, 1/16 to 2 mm diameter, and (3) coarse, over 2 mm diameter. The preliminary types themselves have been

distinguished on the basis of surface treatment. Type descriptions are included in Appendix B. The specimen counts included in this section are those of reconstructed pieces, not the number of sherds excavated. Tempers were identified for all typed sherds using a low power binocular microscope to examine freshly broken edges. Vessel form was estimated on the basis of sherd thickness and curvature, and degree of interior surface smoothing (after Brown 1971). For purposes of descriptions, sherds are described as being "thin," "medium," or "thick." These are, respectively, less than 7 mm and 10 mm and more than 10 mm thick.

Grit Tempered Ware

Plain (21 specimens). The paste for this type is medium fine textured and tempered with abundant sand, grit, and crushed limestone, with some inclusions of small bits of grog and bone. The sherds are generally thin with well smoothed surfaces. The interiors of bowls are particularly well smoothed. The bulk of the material are body sherds. Forms apparently include bottles (8 sherds), bowls with well smoothed interiors (12 sherds), and possibly jars (1 sherd). Proveniences: 104.1, 105.1, 107.1, 112.1, 116.1, 118.1, 120.3, 123.1 (2), 128.1, 129.1, 133.1, 135.1, 136.1, 137.1 (2), 138.1, 138.3, 139.1, 141.1.

Burnished (10 specimens). This group of body sherds also has medium fine textured paste tempered with abundant sand and grit with some grog inclusions. The sherds are relatively thin, with one or both surfaces being burnished to produce a light sheen. Forms include bowls with burnished or well smoothed interiors (5 sherds), bottles (2 sherds), and jars (3 sherds). Proveniences: 108.1, 115.1, 117.1, 123.1, 125.1(2), 127.1, 128.3, 133.2, 138.1.

Engraved (9 specimens). This sample, all body sherds, is characterized by a medium fine paste, tempered with sand and grit, and possibly with some small grog inclusions. Most are medium in thickness, although the bowl sherd is much thinner. Forms include carinated bowls (3 sherds), and bottles (6 sherds). Exterior surfaces were smoothed and burnished in most cases and then decorated with engraved designs consisting of both straight and curvilinear lines. Bowl interiors were well smoothed and lightly burnished. Proveniences: 109.2, 119.1, 127.3, 130.1, 139.1, 141.3 (2), Feature 23, Feature 32.

Engraved Zoned Punctated (1 specimen). This body sherd has a medium fine paste tempered with abundant

fine sand or grit. It is medium in thickness with a smoothed but not burnished exterior and an unsmoothed interior, probably from a bottle. The decoration consists of engraved straight or slightly curvilinear lines which define zones filled with small punctations, made with some type of stylus or small tool. Provenience: 119.1.

Appliqué Fillet (2 specimens). These body sherds have a medium fine paste tempered with sand or grit with some inclusions of fine grog. Both are probably from jars with smoothed to lightly burnished exteriors and well smoothed interiors. The exteriors are decorated with apparently straight narrow appliqué fillets which were partially pressed flat with the finger. Proveniences: 117.1, 134.2.

Neck Banded (6 specimens). These sherds have a medium fine textured paste and are heavily tempered with sand, grit, and crushed limestone, with minor inclusions of fine grog and bone. The sample includes two rims and four body sherds, all of which appear to come from wide mouths, flaring necked jars with direct rims. The exterior of the neck is believed to be decorated with crimping of the coils or appliqué banding to produce a corrugated surface. Interiors are all moderately to well smoothed. Proveniences: 103.3, 108.1, 116.1, 120.2, 134.1, 137.1.

Small Grog Tempered Ware

Plain (25 specimens). This sample consists of body sherds ranging in thickness from thin to medium thick. They have a medium fine textured paste and are tempered with small bits of crushed clay or grog with some grit. Exteriors are medium to well smoothed, while interiors are both smoothed and unsmoothed. Most sherds appear to be from large jars (19 sherds), with several possibly from bottles (4 sherds) and small bowls (2 sherds). Proveniences: 109.1, 112.1 (2), 112.2, 115.1, 118.2, 119.1, 122.1, 123.1, 126.1, 131.3, 133.1 (2), 133.2, 137.2, 138.1, 139.1 (2), 139.2, 141.1 (2), 141.3 (2), Burial 3, Burial 6.

Burnished (10 specimens). This sample consists of body sherds with a medium fine to medium textured paste, small grog temper, and some grit and bone inclusions. They vary in thickness from thin to medium thick and are lightly to well burnished on the exterior surfaces. All the sherds are small but the majority appear to be from jars (7 sherds), with a few possibly from bowls (2 sherds) and one from a bottle. Proveniences: 116.2, 118.2, 119.1, 124.2, 129.1, 132.1 139.1, Burial 5, Burial 6, Scraped Area.

Lip-Incised (1 specimen). This specimen is a very small rim fragment from a vessel of unknown form. The paste is medium fine textured and tempered with finely crushed grog and some grit. The exterior surface is smoothed and possibly lightly burnished. The rim is direct and thinned, while the lip is flat with a finely incised line running down the center. Provenience: 135.1.

Light Incised (1 specimen). This rim sherd comes from a wide mouthed jar with a slightly everted neck. The paste is medium coarse textured and tempered with fine grog and grit inclusions. The interior surface is smoothed, while the exterior is smoothed and possibly lightly burnished (this surface is poorly preserved). The neck appears to have been decorated with what must have been widely spaced, shallow incised or scraped diagonal lines. The rim is direct and thinned, with the lip slightly convex and beveled to the interior. Provenience: Southeast corner of Scraped Area.

Zoned Incised (5 specimens). These are all body sherds and are characterized by a medium fine textured paste with small to fine grog temper, and grit inclusions. They vary in thickness from thin to medium, and include both bowls (3 sherds) and bottles (2 sherds). Exterior surfaces are well smoothed but apparently not burnished. Incised exterior designs involve widely spaced parallel lines enclosing zones of very narrowly spaced parallel lines. Interiors of bowls were smoothed to well burnished. Proveniences: 104.4, 117.1, 126.3, 135.1, 136.1.

Engraved Zoned Punctate (1 specimen). This specimen has a medium textured paste and is tempered with ground grog. Both the interior and exterior surfaces are smoothed and well burnished, suggesting the sherd originally came from a bowl or small, wide mouthed jar. The exterior surface is decorated with a series of engraved straight lines, some of which enclose zones of small punctations. These punctations are triangular and appear to have been made by a narrow tool or stylus which was held at an angle to the surface of the vessel. Provenience: 141.3.

Horizontal Incised (5 specimens). These specimens have a medium fine to medium textured paste, and are tempered largely with grog, with grit and bone inclusions. Four of these sherds are rims (two of which are from the same vessel but from different units), and from incurving rim hemispherical bowls. Exterior surfaces are smoothed, and in some cases moderately burnished, while interiors are moderately to well smoothed. The exteriors are decorated with several medium to wide, incised horizontal lines parallel to and immediately below the rim. Rims are

either direct or thinned, while lip forms range from flat to slightly convex with a slight bevel to the interior. Proveniences: 109.2, 116.1, 124.3, 126.3, 141.3.

Incised Appliqué (1 specimen). This sherd has a medium fine textured paste with grog temper, plus some grit and bone inclusions. The interior is well smoothed, suggesting a bowl form, but the exterior apparently was minimally smoothed prior to decoration. This exterior decoration involved the use of pinched and appliqué nodes coupled with shallow, wide incising and possible brushing of the surface subsequent to the application of the nodes. Provenience: Burial 3.

Cream Slipped (1 specimen). This small body sherd appears to have a burnished cream slip on the exterior surface, and a well smoothed interior. It is possible that the piece originally came from a small bowl. It is well fired and thin, with a medium fine paste and finely ground grog temper. Provenience: 134.1.

Grog Tempered Ware

Plain (101 specimens). This relatively large sample includes 17 rims, seven bases, and 77 bodies and shows a great amount of variability in wall thicknesses. The pastes are medium to coarse textured with coarsely ground grog temper, as well as some grit and bone inclusions. Exterior surfaces are generally poorly to moderately well smoothed while interiors are about the same. Much of this sample (if not all) appears to have come from jars, including both cylindrical forms with either straight or slightly everted necks, and more globular restricted neck jars with everted rims. One sherd may have come from a restricted orifice, neckless jar. All of the bases come from circular based jars. One was from a concave based vessel, while the others apparently came from flat based jars. The rims include direct, thinned, and rolled forms. The lips are mostly flat or slightly convex, with only one being fully rounded. Proveniences: General Surface, 103.0, 103.2, 104.1 (3), 104.2 (2), 104.3, 108.1 (2), 108.2 (2), 109.1, 109.2, 111.1 (3), 112.1, 112.2, 112.3, 113.1 (2), 113.2, 115.1, 117.2, 119.1, 120.1, 123.1, 124.1, 125.2 (2), 125.3 (2), 127.1, 128.1, 129.1, 129.3, 130.1 (3), 130.2, 131.1 (4), 131.2 (2), 131.3, 132.1 (2), 132.2 (2), 133.2 (2), 134.1 (2), 134.3 (2), 135.2 (2), 137.1 (3), 137.2 (3), 137.3, 138.1 (4), 138.2, 138.3, 139.1, 139.2 (2), 140.2, 141.1 (2), 141.2 (3), 141.3 (6), Feature 6, Feature 23 (2), Feature 32, Burial 3 (4), Burial 4, BHT, Scraped Area (2).

Burnished (66 specimens). This sample includes 8 rims, 57 body sherds, and a single shoulder. Wall thickness varies from medium thin to very thick. The paste

is medium to coarse textured with grog, grit, and bone temper. Both interior and exterior surfaces generally are smoothed, with the exterior surfaces being carelessly burnished. This burnishing is often not enough to smooth out the surface completely or even to completely cover it. Several sherds have the burnishing confined to high spots on the clay surface, and in several cases individual burnishing marks can be distinguished. Forms appear to include concave bottomed, circular based jars and heavy carinated bowls. Several sherds appear to come from restricted orifice, everted neck jars, while several others may come from bottles. Rim forms include both direct and thinned rims, while the lip forms grade from flat to slightly convex, to rounded. Proveniences: General Surface, 103.4, 103.5, 104.1, 106.3 (2), 108.1, 109.2, 111.1, 111.2, 112.3, 112.4, 113.2, 115.1, 116.1, 116.2, 118.1 (4), 119.2, 120.1, 120.2 (2), 123.2, 127.1, 127.2, 128.2, 128.3, 130.1, 130.2 (2), 131.3, 132.1, 132.2 (4), 133.2 (3), 134.1, 134.2, 135.2, 135.3, 136.1, 137.1, 137.2 (4), 138.2, 138.3 (2), 139.2 (2), 139.3 (2), 141.3, Feature 23, Feature 47, Burial 3 (3), Burial 4, Scraped Area.

Red-On-Natural Painted (2 specimens). Both of these specimens have a medium coarse textured paste, tempered with medium to large fragments of grog, with grit and bone inclusions. The exterior surfaces are smoothed and one appears to have been lightly burnished. Both appear to have traces of a fugitive brown pigment or paint on the exterior surface. On one specimen this seems to take the form of medium fine curvilinear lines, but on the other it is too faint to detect designs. One sherd appears to come from a bottle and to consist of a direct rim with a rounded lip. The other specimen appears to come from a bowl with a well burnished interior. Proveniences: 127.2, 134.1.

Incised (1 specimen). This small body sherd has a coarse textured paste tempered with medium to finely ground grog. The exterior is decorated with an incised straight line, the outlines of which were then blurred by burnishing of the exterior surface. The interior is smoothed, suggesting the sherd originally came from a bowl form. Provenience: 105.1.

Coarse Grog Tempered Ware

Plain (15 specimens). These sherds all are characterized by a coarse textured paste, tempered with coarsely ground grog and a heavy use of bone. They are generally medium thick to thick sherds, with a poorly smoothed exterior and interior. The entire sample consists of body sherds, apparently from jars. Proveniences: 103.2, 106.3, 110.1, 110.2, 115.1, 118.1 (2), 130.3, 131.1, 132.3,

136.1, Feature 47, Burial 3, BHT, southeast corner Scraped Area.

Finger Impressed (34 specimens). This sample consists of coarse textured paste sherds, tempered with coarse grog and some bone. Exteriors are lightly smoothed and then decorated with fingertip impressions or punctations which cover presumably the entire exterior surface of the vessels. No rims are included within the sample, but two basal sherds are included which show finger impressions all the way to the base of the vessels, which appear to have been flat and circular. Vessel interiors are moderately well smoothed to lightly burnished, suggesting wide mouthed jars and bowl forms. Proveniences: 104.1, 104.3, 107.1, 108.1, 120.1, 123.1 (2), 125.1 (2), 127.2, 128.3, 129.1 (2), 130.1, 133.2, 134.1 (2), 136.1 (2), 137.1 (2), 137.2, 138.1 (4), 139.1 (6), 141.2, Feature 36.

Bone Tempered Ware

Burnished (1 specimen). This single small specimen may be from a bottle, based on the unsmoothed interior surface and the curvature of the sherd. It has a fine textured paste which is heavily tempered with finely crushed bone and grog, with a few grit inclusions as well. The exterior surface is well smoothed and has been burnished to produce a light polish. Provenience: 124.1

Red Slipped (2 specimens). One of these sherds appears to be from a relatively thin walled jar. The paste is medium fine textured and heavily tempered with bone as well as some grog. The interior was smoothed as, presumably, was the exterior prior to the application of a relatively thick red slip, which may have been lightly burnished. Proveniences: 107.1, Burial 5.

Shell Tempered Ware

Plain (20 specimens). This material is characterized by a relatively fine textured paste tempered with crushed shell. Both interiors and exteriors were smoothed but not particularly well. Forms include that of a small jar with restricted orifice and straight neck plus a flaring walled composite silhouette bowl. The five rim sherds are all thinned with both flat and rounded lips. Four of these rims, plus many of the body sherds, may be from the same vessel (the bowl). One rim sherd has a drilled repair hole below the rim. Proveniences: 104.1 (3), 113.2, 116.1, 117.1, 130.1, 131.1, 135.1 (2), 136.1 (2), 137.1 (3), 138.1, 138.2, 138.3, 139.1 (2).

Bone Tools

Several bone tools of various kinds were recovered during the excavation of the Thomas site. Appendix D (see Volume 2) presents more detailed discussions of these tools, and faunal remains.

SUBSISTENCE RESOURCES

Several types of subsistence data from the excavations at the Thomas site include vertebrate faunal remains, macrobotanical remains, and molluscan remains. The results are summarized below and described in greater detail in Appendices D, G, and H, respectively.

Vertebrate Remains (by Bonnie C. Yates)

A total of 15,381 pieces of animal bone was recovered from 41DT80, of which 4,758 have been identified. Preservation is similar to 41DT124 (Chapter 7), except that hardly any bones exhibit the decorticated condition of the leached bone from that site. Burned bone revealed a variety of effects, including an unusual blue color that may be indicative of an intensely hot, possibly reducing atmosphere, for a short exposure time. Very little is known about the mechanics of burned bone coloration (cf. Gilchrist and Mytum 1986).

Vertical distribution indicates a dramatic reduction in bone density below Level 3 in all units. In the main excavation block, bone concentrates in Level 2; elsewhere, Level 1 yields the most bone. Horizontal distribution in the main excavation block is rather diffuse; however, high bone density is noted in the northwest quadrant of that block. Level 3 has higher bone frequencies than Level 2 in the northern half; where, Level 1 has a higher frequency than Level 2 centering on Feature 3.

The vertebrates identified from this season's excavations are listed in Appendix D (Table D-3). The fauna identified from features are listed in Table D-4. Very few features did not contain bone; and those that were low were primarily postholes. The faunal contents of other features are remarkably similar, with turtle, rabbit, deer, with snakes, rodents, and fur bearer remains in many instances.

Deer elements are found in virtually all units with no apparent pattern to their distribution. Remains of other animals are also scattered, with the exception of a nearly complete pocket gopher carcass in Feature 21 that may be intrusive.

Butchering patterns at 41DT80 are quite diffuse and diverse. Dismembering cuts on deer elements are in almost equal proportions to filleting marks. All body parts

of deer (except skulls) exhibit some cuts, and dismembering cuts on the long bones are generally accompanied by another fragment of a given element that displays a filleting mark. There is no discernible pattern to the butchering refuse disposal across the main excavation block; fewer cut bones, however, occur in Level 1 than deeper down.

Unit 141 contained only one butcher-marked bone, a large bird's ulna. This bird is probably a raptor, smaller than a red-tailed hawk (*Buteo* sp.) and larger than a cooper's hawk (*Accipiter* sp.). Other non-deer elements exhibiting cut marks were found in the main excavation block and include rabbit (Unit 117 Level 1), turtle (Unit 120 Level 2), squirrel (Units 127 and 129 Level 3), turkey (Unit 129 Level 2, Unit 138 Level 3), and a raccoon mandible (Unit 117 Level 1), which has cut marks lingually resulting from removal of the tongue.

Three deer elements exhibit charred and ground faces. One is a distal humerus (Unit 131 Level 3), and the others are astragali (Unit 126 Level 2, Unit 139 Level 3). These elements may have been used as a pestle to grind up hot vegetable matter (e.g., pecans or acorns). Charred breaks along spiral fractures were also noted on at least 10% of the identified deer elements, usually on shafts of long bones. This charring is indicative of periosteum removal during marrow extraction and bone grease manufacture (Lintz 1976:87). Similar marks were noted on the basal portions of deer mandibles, also known to contain a rich source of marrow. Turkey wing and leg elements likewise exhibited the same processing marks, indicating inclusive use of this procedure on animals smaller than deer.

Another observation noted a certain consistency in breakage patterns on metapodials of deer. These cannon bones appear to have been carefully fractured so as to form a long splinter. These splinters were frequently used to manufacture bone tools (see Appendix D).

Taphonomically, this sample is interesting because of the prevalence of calcium carbonate concretions adhering to many of the bone tools and some of the food remnants. This occurrence is attributed to the leaching of bone in midden soils (see Appendix E). Charting the proveniences of these tools and elements may reveal a pattern that will account for the concretion being present only on certain pieces or within certain soil and water regimes with archaeologically derived soils.

Macrobotanical Remains (by Cathy J. Crane)

Samples from 41 features at this site were analyzed (Tables 6-4 and 6-5). Hickory nutshell was present in 100% of the samples and acorn shell in 76% of the non-

TABLE 6-4
Distribution Of Plant Remains*

Feature	Wood Charcoal	Pine Cone	Hickory Nutshell	Pecan Nutshell	Acorn Shell	Nutmeat	Maize	Squash Rind	Tuber	Rhizome	Seeds	Unknown	Total
2	2.71	—	54.08	0.05	0.01	0.06	0.01	0.13	0.11	—	0.01	2.53	59.703
3	0.43	—	4.24	—	<0.01	—	—	—	0.05	—	—	0.02	<4.75
4	1.92	—	2.02	—	0.03	—	—	—	—	—	—	0.01	3.98
5	2.89	—	0.06	—	—	—	—	—	—	—	—	—	2.95
6	1.25	0.06	7.49	0.05	0.01	—	<0.01	0.10	0.03	—	—	0.02	<9.02
9	1.35	—	2.71	<0.01	—	—	—	<0.01	<0.01	—	<0.01	0.01	<4.11
10	0.02	—	0.19	0.01	—	—	—	—	—	—	—	—	0.22
11	4.42	—	6.41	—	0.07	—	—	0.01	0.05	—	<0.01	0.03	<11.00
12	0.64	—	4.38	—	<0.01	—	—	0.02	0.01	—	<0.01	0.02	<5.09
13	0.33	—	1.56	—	<0.01	—	—	0.02	0.03	—	—	—	<1.95
14	2.55	—	0.49	—	<0.01	—	—	—	—	—	—	—	<3.05
15	0.04	—	0.05	—	—	—	—	—	—	—	—	—	0.09
16	0.09	—	0.57	—	0.02	—	—	—	—	—	—	—	0.68
17	0.05	—	0.35	—	<0.01	—	—	—	<0.01	—	—	0.01	<0.43
18	0.15	—	0.53	—	—	—	—	—	—	—	—	—	0.68
19	0.08	—	0.24	—	—	—	—	0.01	<0.01	—	—	—	0.34
20	1.30	—	23.44	0.14	0.01	—	—	0.05	0.01	—	<0.01	0.18	<25.14
21	1.78	—	7.88	—	0.03	—	—	0.02	0.04	—	—	0.03	9.78
22	0.12	—	0.65	—	<0.01	—	—	—	—	—	—	—	<0.78
23	1.71	—	16.14	0.08	0.05	—	—	0.03	—	—	<0.01	0.08	<18.10
25	0.57	—	2.66	—	0.05	—	<0.01	—	0.02	—	<0.01	0.02	<3.34
29	0.62	—	4.91	—	—	—	—	—	—	—	—	—	5.53
30	3.82	—	2.68	—	0.01	—	—	0.01	0.02	—	0.01	0.02	6.57
31	0.01	—	0.07	—	<0.01	—	—	—	<0.01	—	—	—	<0.10
32	0.42	—	14.22	0.32	2.68	—	—	0.07	0.01	—	—	0.12	17.84
33	0.01	—	<0.01	—	—	—	—	—	—	—	—	—	<0.02
34	<0.01	—	0.02	—	—	—	—	—	0.01	—	—	—	<0.04
35	1.24	—	2.45	—	0.01	—	—	0.05	0.06	—	<0.01	0.01	<3.83
36	1.28	—	4.53	—	0.02	—	—	0.04	0.08	—	—	0.03	5.98
37	0.59	—	0.18	—	—	—	—	—	—	—	—	—	0.77
39	0.61	—	4.48	—	0.01	—	—	—	—	—	—	—	5.10
40	0.06	—	0.57	—	—	—	—	—	—	—	—	—	0.63
43	0.06	—	0.24	—	—	—	—	—	—	—	—	—	0.30
45	1.72	—	4.45	—	0.02	—	—	0.01	0.02	—	0.01	0.02	6.25
46	0.69	—	3.70	0.02	0.01	—	—	0.08	—	—	—	0.04	4.54
47	2.16	—	7.14	0.04	0.06	—	—	0.10	0.03	<0.01	<0.01	0.13	<9.68
48	0.76	—	4.58	—	0.03	—	—	0.01	0.01	—	—	0.05	5.44
49	0.81	—	0.75	—	—	—	—	—	—	—	—	—	1.56
<i>Burials</i>													
4	0.62	—	5.63	—	—	—	—	—	—	—	—	0.02	6.27
5	0.04	—	0.58	—	—	—	—	—	0.01	—	<0.0	0.01	<0.65
Total	39.93	0.06	<197.33	<0.72	<3.20	0.06	<0.03	0.77	<0.64	<0.01	<0.12	3.41	<246.28

* Enumeration is total weight in grams.

TABLE 6-5
Seed Frequencies

Plant Taxa	Feature											Burial 5	Total
	2	9	11	12	20	23	25	30	35	45	47		
<i>Iva annua</i>	2	—	—	2	—	—	—	—	—	—	—	—	4
<i>Lathyrus sp./Vicia sp.</i>	—	—	1	—	—	—	1	1	1	3	1	—	8
<i>Chenopodium sp.</i>	1	—	—	1	1	1	—	1	—	—	—	1	6
<i>Polygonum sp.</i>	—	—	—	—	—	—	—	1	—	—	—	—	1
<i>Galium sp.</i>	—	—	—	—	—	—	—	—	1	—	—	—	1
<i>Scirpus sp.</i>	—	—	—	—	—	—	—	—	—	—	—	1	1
<i>Rubus sp.</i>	—	1	—	—	—	—	—	—	—	—	—	—	1
Gineae	1	—	—	1	—	—	—	—	—	—	—	—	2
Unidentified Seeds	—	—	—	—	—	—	1	—	—	1	1	—	3
Unidentifiable Fragments	1	—	—	—	—	1	—	1	—	—	—	—	3
Total	5	1	1	4	1	2	2	4	2	4	2	2	30

posthole features indicating that both formed an important part of the diet. Pecan nutshell, however, was found in only 30.8% of the features, which is significantly less than its 76.2% occurrence at 41DT124 (Chapter 7). Either pecan trees were less abundant at 41DT80 than at 41DT124, or the people preferred hickory nuts and acorns over pecans.

Cultigens were also less abundant at this site than at 41DT124. Less than .03 g of maize remains was recovered from 7.7% of the features. Obviously, this is an infinitesimal amount of maize considering that the contents of 41 features at the site were sampled. Consequently, the possibility that they obtained this maize through trade cannot be ruled out. However, significantly more features (61.5%) contained a total of .77 g of squash rind. So it is possible that small-scale agriculture was practiced at the site.

Tuber fragments, which occurred in 65.4% of the non-posthole features, were only slightly more common than squash rind fragments. This is similar to the situation at 41DT124 where tuber occurred in 9% more of the features than squash. Rhizome or the probable *Psoralea* lateral tuber fragments were recovered from 3.8% of the features.

Seeds were even less frequent at 41DT80, since only 30 seeds were recovered from 41 features. However, like at 41DT124, *Lathyrus sp.* or *Vicia sp.* was one of the most

common seeds occurring in 23.1% of the non-posthole features. Unlike 41DT124, however, *Chenopodium* seeds were just as common as *Lathyrus/Vicia* seeds. In contrast, *Iva annua* seeds were less common at 41DT80, occurring in 7.7% of the non-posthole samples. *Polygonum*, *Galium*, *Rubus*, and *Scirpus* seeds were the least frequently occurring seed taxa indicating that, if they were used at all, they were of minor importance.

Feature 2, radiocarbon dated at A.D. 1120 \pm 50 (SMU 1903, corrected), contained the greatest amount and variety of plant remains including *Iva annua* and *Chenopodium* seeds, moderate amounts of tuber and squash rind fragments, and a couple of maize kernel fragments. Feature 12, dated at A.D. 1110 \pm 110 (SMU 1968, corrected), and Feature 23, dated at A.D. 1190 \pm 30 (SMU 2025, corrected) contained nutshell and squash rind. The large amount (2.68 g) of acorn shell in Feature 32 suggests that either this pit was used to roast acorns, and/or numerous acorns were shelled nearby and the shell discarded into the pit. Feature 6 contained a clump of pine cone scales. This pine cone, which could be considered somewhat of an exotic item at 41DT80, was probably brought back to the site after an excursion to the "Pineywoods" farther east or to the Ouachita Mountains to the north.

The plant remains from this site suggest that it could also have been occupied year round. However, the

geological evidence indicating that the site was periodically inundated makes it less likely that it was a permanently occupied site.

Taken as a whole, the macrobotanical material seems to be suggestive of a spring and late summer to fall occupation of the Thomas site. The nuts, acorns, and many of the seeds are representative of resources that would be available from the late summer to fall (Crane 1982, cf. Brueth and Perttula 1981:125-128), while the *Lathyrus/Vicia* and *Psoralea* may have been more available in the spring to early summer (Martin et al. 1987:237-252). Likewise, the maize and squash could relate to either a spring/summer or a summer/fall occupation.

Of course, the storability of almost all of these plants reduces their utility as seasonal indicators in the absence of additional data. However, the fact that the area of 41DT80 is currently subject to heavy flooding in the spring reduces the likelihood that the site was occupied during that part of the year. It may have been that the major occupations of the Thomas site were in the late summer to fall, with the presence of spring resources at the site due to (1) later availability of those resources than is now believed, (2) occupation of the site during the spring of dry years, or (3) storability of spring resources with a carry over into a summer/fall occupation.

As far as the evidence for changing patterns of utilization of plant resources through time is concerned, the data are still equivocal. Only a handful of the floated features can be even tentatively associated with one of the three possible occupation periods at the Thomas site (see Summary) and what differences do appear may be more the result of sampling error than actual differences through time. Hickory nuts were apparently of prime importance during all occupations of the site, with acorns and *Psoralea* also being used throughout the entire period of site occupation. One of the earliest features, Feature 48, contained a small amount of squash remains but no maize, suggestive but far from conclusive, given the apparently poor maize preservation. Maize appears in Feature 2, radiocarbon dated to A.D. 1120 \pm 50 (SMU 1903, corrected), and traces in Features 6 and 25. It is not found in any features associated with the probable later occupation. Very few of the seeds can be associated with even tentatively dated features, but *Iva annua*, *Chenopodium*, and members of the Gineae family are associated with the ca. A.D. 1120 occupation, while only *Chenopodium* are associated with a probable Late Caddoan use of the site.

Molluscan Remains

All fragments of freshwater mussel shell recovered during the excavations at 41DT80 were submitted for identification and quantification to Dr. Richard Fullington of the Dallas Museum of Natural History. His research has resulted in the identification of nine unionid species, totaling ca. 1051 umbos (see Appendix H).

CULTURAL FEATURES

The 1987 investigations conducted at the Thomas site resulted in the identification of an additional 57 cultural features in various parts of the site. Of these, 55 were recorded in both plan and profile views and either partially or completely excavated. The remaining two features included two large, unnumbered pits revealed in the eastern profile of the backhoe trench north of the block excavation (see Figure 6-9). Of the other 55 features, 41 were located within the limits of the excavation block or the adjoining Unit 103, four were partly exposed by the backhoe trenching, 9 were uncovered by the machine scraping around the block, and one was located in the floodplain to the east of the site rise. Three of the cultural features identified have been classified as hearths, while another four were burials. Seventeen features have been classified as large pits on the basis of being more than 0.10 m² (0.33 ft²); four are over 0.70 m² (2.3 ft²). Seven have been grouped together as small pits or large postholes, and are between 0.05-0.09 m² (0.2-0.3 ft²). A second grouping based on size consists of what are referred to as postholes, containing 18 features ranging from 0.01-0.05 m² (0.03-0.2 ft²); the vast majority 0.03 m² (0.1 ft²). A small residual group is separated on the basis of having a high density of charcoal or carbonized plant remains in their fill. Only six of these features were identified and they range in size from 0.02-0.07 m² (0.066-0.23 ft²), crosscutting the small pit or posthole division. Their origin remains uncertain. The features belonging to each of these classifications are discussed in greater detail below.

Hearths

Three features were identified at 41DT80 as probable hearths, including Features 3 and 48 within the block excavation, and Feature 1 in the floodplain area to the east of the rise (see Figure 6-1 and Figure 6-13). These features were distinguished by concentrations of fire-

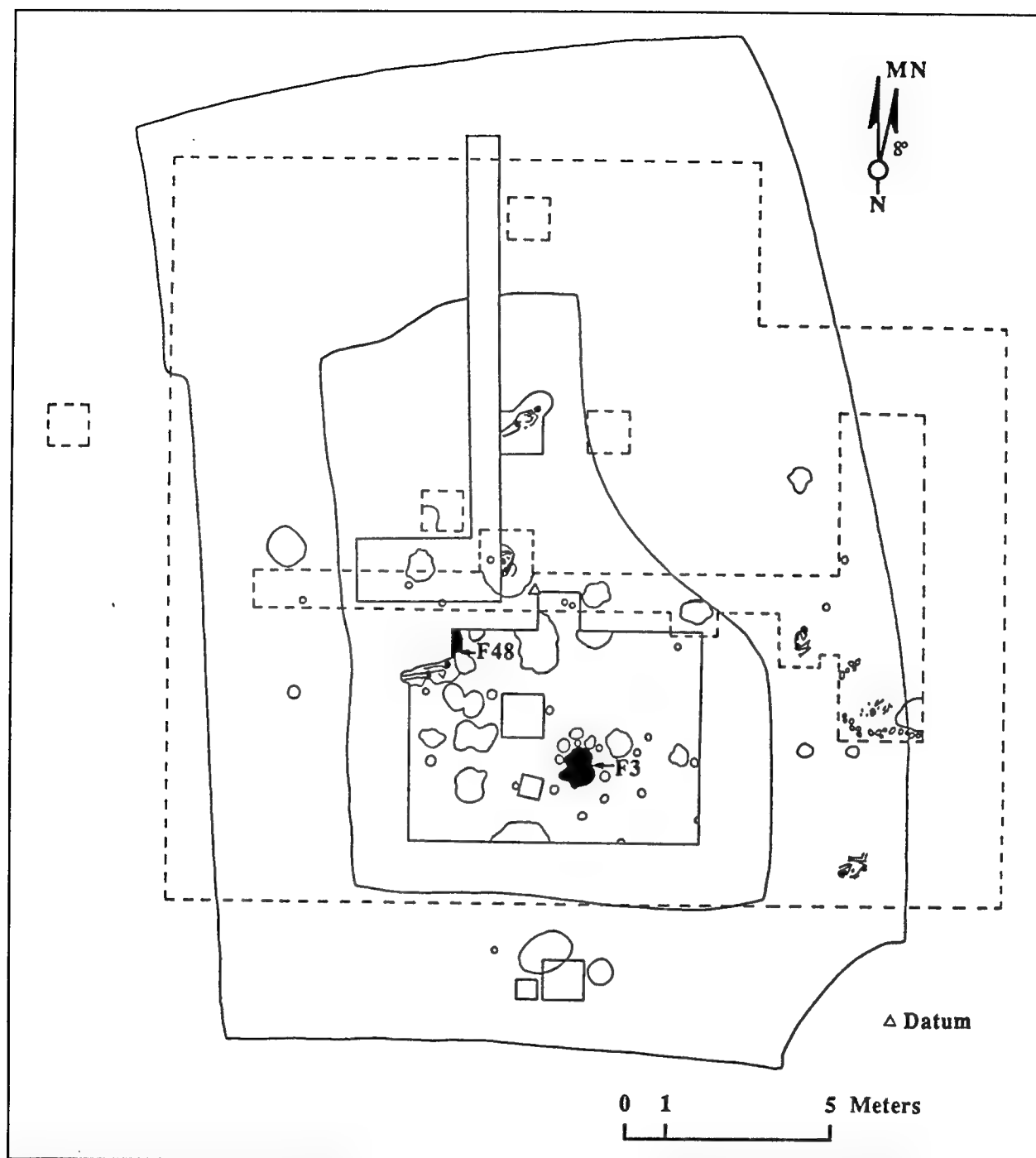


Figure 6-13. Location of hearths excavated in 1987 within the central block at 41DT80: the Thomas site.

cracked rock and fired clay in the case of Feature 1, or high densities of ash and charcoal with evidence of in situ firing regarding Features 3 and 48. In size, they varied from ca. 0.8-1.0 m² (2.6-3.28 ft²) for Feature 48, to 0.54 m² (1.8 m²) for Feature 3 and 0.28-0.38 m² (0.9-1.2 ft²)

for Feature 1 (Table 6-6). Feature 1 contained no artifacts (other than about 65 fire-cracked rocks and 32 fragments of baked clay; (see Figure 6-14), while neither Feature 3 nor Feature 48 is distinctive for its artifact content (Table 6-7).

TABLE 6-6

Metrical Data For Hearths

Feature	Area (m ²)	Depth Below Datum (m)	Depth Below Surface (cm)	Volume Water Screened (liters)	Volume Floated (liters)
1 ¹	0.28 - 0.38	—	—	—	—
3	0.54	-10.40	25	+38.3 ²	20
48	? ³	-10.34	37	17.5	25

¹ Feature 1 was a surface feature, unexcavated and unfloated.

² Water screened volume of Feature 3 includes unmeasured material from Unit 23.

³ Only partially within excavation block.

Feature 1 consisted of a cluster of fire-cracked rock and burned clay, and was interpreted as a deflated hearth. It was located on the surface of the floodplain to the east of the rise, about 11-12 m (36.1-39.4 ft) north and 30 m (98.4 ft) east of the site datum (see Figure 6-1). The hearth consisted of a cluster of quartzite cobbles and large chunks of baked clay arranged in a roughly circular or oval configuration (Figure 6-14). This concentration extended in a general linear fashion to the north, probably due to the action of erosion. The hearth must originally have measured ca. 60-70 cm (23.6-27.6 ft) across judging by the densest area, yielding an original surface area for this feature of at least 0.28-0.38 m² (0.9-1.2 ft²). No artifacts were found associated with Feature 1, and apart from the fragments of baked clay mentioned above, no evidence of subsurface firing was noted. Because of the deflated nature of Feature 1, it was not sectioned.

Feature 3 Feature 3 refers to an irregularly shaped area of ash and burned soil in a matrix of grayish brown silty loam located in Units 122, 123, 129, and 130 in the south central part of the excavation block (see Figure 6-13). Feature 3 was initially noted at the base of Level 1 (10 cm [3.9 in] below surface) as an area of mottled ash and charcoal in grayish brown loam, surrounded by smaller patches of burned soil and concentrations of fire-cracked rock (Figure 6-15). The feature was originally mapped as an oval area, but later excavation showed it to be far more irregular in shape, measuring ca. 1.0 m (3.28 ft) north to south by about .82 m (2.7 ft) east to west and covering about 0.82 m² (2.7 ft²). In cross section, Feature 3 appeared as a shallow deposit of mottled ash and fired clay in grayish brown to very dark grayish brown silty loam (Figure 6-16). It was vaguely basin-shaped, being

shallowest on the south and deepest on the north. Generally, it bottomed out at about -10.40 m (25 cm [9.8 in] below surface), although in the north it may have gone as deep as -10.44 m.

Feature 3 appeared to be underlain by a zone of very mottled silty loam, grading from very dark grayish brown to brown with patches of grayish brown and light brownish gray (see Figure 6-16). This is believed to be a zone of light firing discoloration. Without a high clay content, the silty loam matrix beneath Feature 3 apparently did not become heavily oxidized with firing, although it was fired harder than the surroundings. Beyond these limits, the surrounding matrix was a dark grayish brown to dark brown silty loam indistinguishable from that elsewhere in the block. A 20 liter flotation sample was collected from Feature 3 in Units 129 and 130. No volumetric measures were made for the portion of Feature 3 excavated from Unit 123, but the remaining three units produced 38.3 liters of fill that was water screened (as was the fill from Feature 3 in Unit 123). Feature 3 contained baked clay, bone, shell, charcoal, and burned rock in addition to a few flakes and a uniface (see Table 6-7). A sample of charcoal and charred nutshell that was separated from the flotation sample taken from Feature 3 (e.g., from Units 123, 129, and 130) was radiocarbon dated at A.D. 1020 ± 60 years (SMU-1967, corrected).

Feature 48 consisted of an area of layered ash and fired clay mixed with silty loam, partially uncovered on the western side of Unit 106 (see Figure 6-13). The feature appeared to be located directly on top of the B horizon, and the underlying silty loam/silty clay seemed to show a decreasing degree of oxidation with depth (see

TABLE 6-7

Contents Of Hearth Features By Recovery Method

Feature ¹	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Ceramic	Baked Clay ²	Bone ²	Shell ²	Charcoal ²	Burned Rock
1 ³	—	—	—	—	—	—	32	—	—	—	65
3 WS	—	—	1	9	—	—	86	56	37	170 ⁴	12
3 F	1	—	—	18	—	—	3	19	23	8	9
48 WS	—	—	—	2	—	—	14	1	3	2	2
48 F	—	—	—	7	—	—	4	15	27	11	1
Total	1	—	1	36	—	—	139	91	90	191	89

¹ F denotes flotation and includes only heavy fraction and #6 screen larger than 2.5 mm for everything except lithic debris and FCR; WS denotes water screened.

² Baked clay, bone, shell, and charcoal are enumerated in grams; all other categories are enumerated in counts.

³ Counts based on material on surface but not collected.

⁴ This figure is large due to some charcoal being weighed in its soil matrix.

Figure 6-8).

Apparently, the higher clay content of the B horizon resulted in a greater degree of oxidized discoloration than was the case for Feature 3. As noted above, the surface of Feature 48 appeared to lie about -10.34 m (ca. 37 cm [14.6 in]) below surface, directly on top of the surface of the B horizon. Despite intrusions from above, there were no indications that Feature 48 was dug down very far (or even at all) and it is believed that the feature represents a hearth built either directly on an old ground surface or within a very shallow basin, such as was the case for Feature 3.

The main portion of Feature 48 appeared to consist of a ca. 10 cm (3.9 in) thick deposit of pale brown silty loam (10YR6/3) mottled with charcoal and patches of yellow fired clay (10YR7/6). Near the bottom of this deposit was a layer of denser white ash (10YR8/1) underlain by yellow burned clay (10YR7/6), both mottled with pale brown silty loam.

The B horizon underlies this deposit, and graded from yellowish brown to yellow clayey silt (10YR5/4 to 6/4 to 7/6), through yellowish brown silty clay (10YR5/4), to light yellowish brown silty clay (10YR6/4) with carbonate inclusions. These zones show decreasing frequencies of ash inclusions as well as decreasing oxidation. Due to Feature 48 being only partially excavated, it is impossible to be certain of its size; but the area was ca. 0.2 m² (0.6 ft²) and increasing this by a factor

of 4 or 5 does not seem unreasonable. This scenario would yield a size estimate of 0.8-1.0 m² (2.6-3.28 ft) for Feature 48.

The excavation of Feature 48 within Unit 106 yielded a flotation sample of 20 liters plus about 17.5 liters of fill for water screening. Following the completion of the Unit 106 profile, an additional flotation sample of 5 liters was collected from the area of ash and fired clay in the profile above the B horizon, in order to gain a suitable charcoal sample. The water screened fill of Feature 48 contained a few flakes along with small quantities of shell, bone, charcoal, baked clay, and a few fire-cracked rocks (see Table 6-7). A radiocarbon sample consisting of charcoal and charred nutshell from Feature 48 yielded a radiocarbon date of 960 ± 40 years B.P. (SMU-1959), calibrated to A.D. 1080 ± 60.

Large Pits

Seventeen of the cultural features recorded at the Thomas site in 1987 have been classified as large pits (Figure 6-17). These include twelve features from inside the excavation block (Features 2, 6, 9, 11, 12, 20, 21, 23, 27, 30, 35, and 43), four from the machine scraped area beyond the block (Features 32, 36, 39, and 46), and one from within an area cleared by the backhoe northwest of the block (Feature 47). In area, they ranged in size from as much as 1.26 m²-0.18 m² (Feature 43 was not entirely

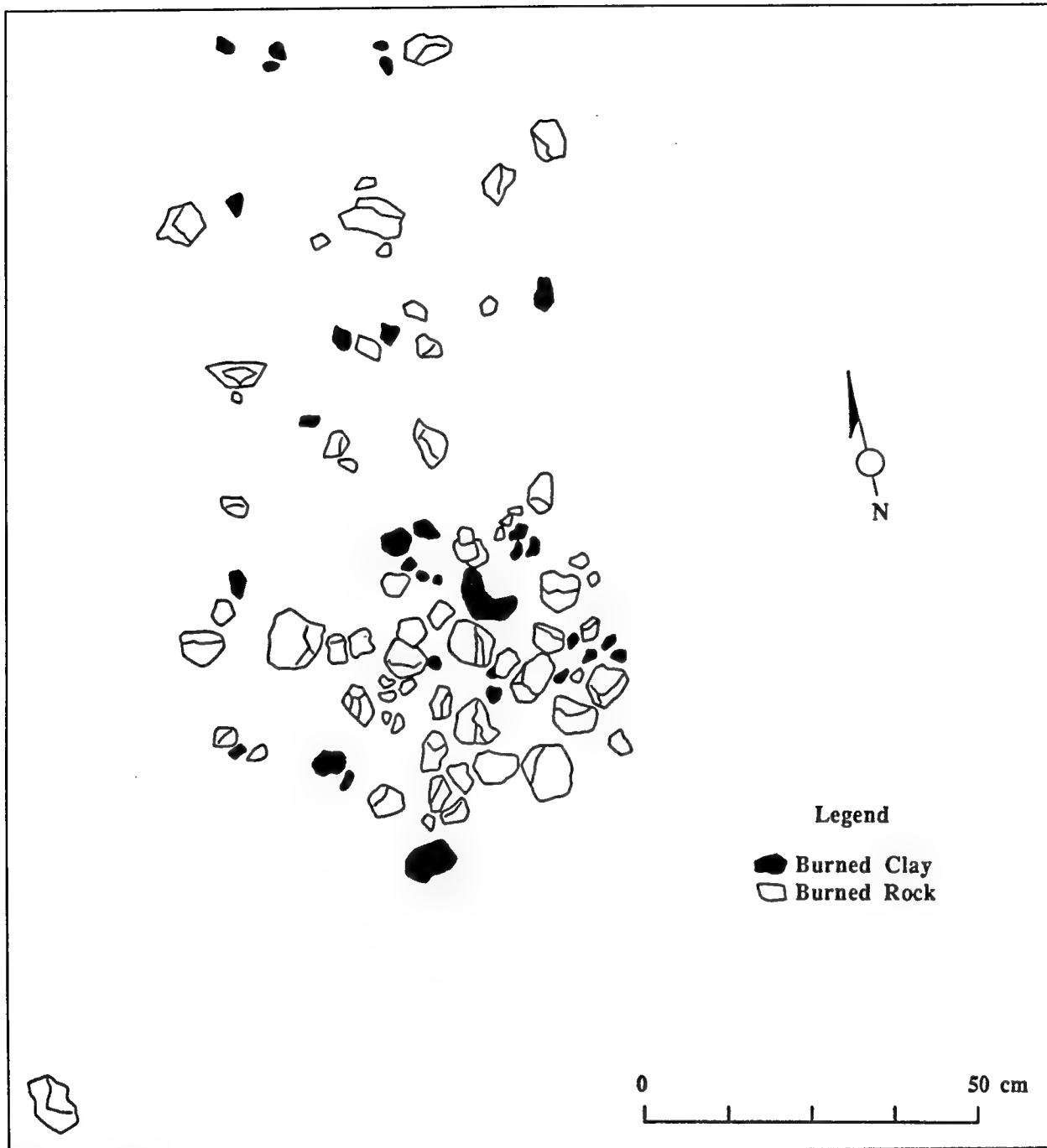


Figure 6-14. Plan view of Feature 1, a surface scatter, thought to be a hearth at 41DT80: the Thomas site.

within the block, but it had to be larger than the 0.04 m^2 that was uncovered), with a mean of 0.50 m^2 (Table 6-8). Four features were noticeably larger than the others: Feature 2 (1.26 m^2 [4.1 ft^2]), Feature 23 (1.02 m^2 [3.3 ft^2]), Feature 36 (0.94 m^2 [3.1 ft^2]), and Feature 32 (0.70 m^2 [2.3 ft^2]). The remaining 13 pits were all less than 0.58 m^2 (1.9 ft^2). This group included oblong, oval, and circular

features, in addition to several with more irregular shapes; while the preserved profiles suggested most were basin-shaped with concave bottoms. No trace of a zone of oxidation was noted on any of these pits, tending to discount a roasting function.

The artifact assemblages from these pits are extremely varied (Table 6-9), and a cursory examination

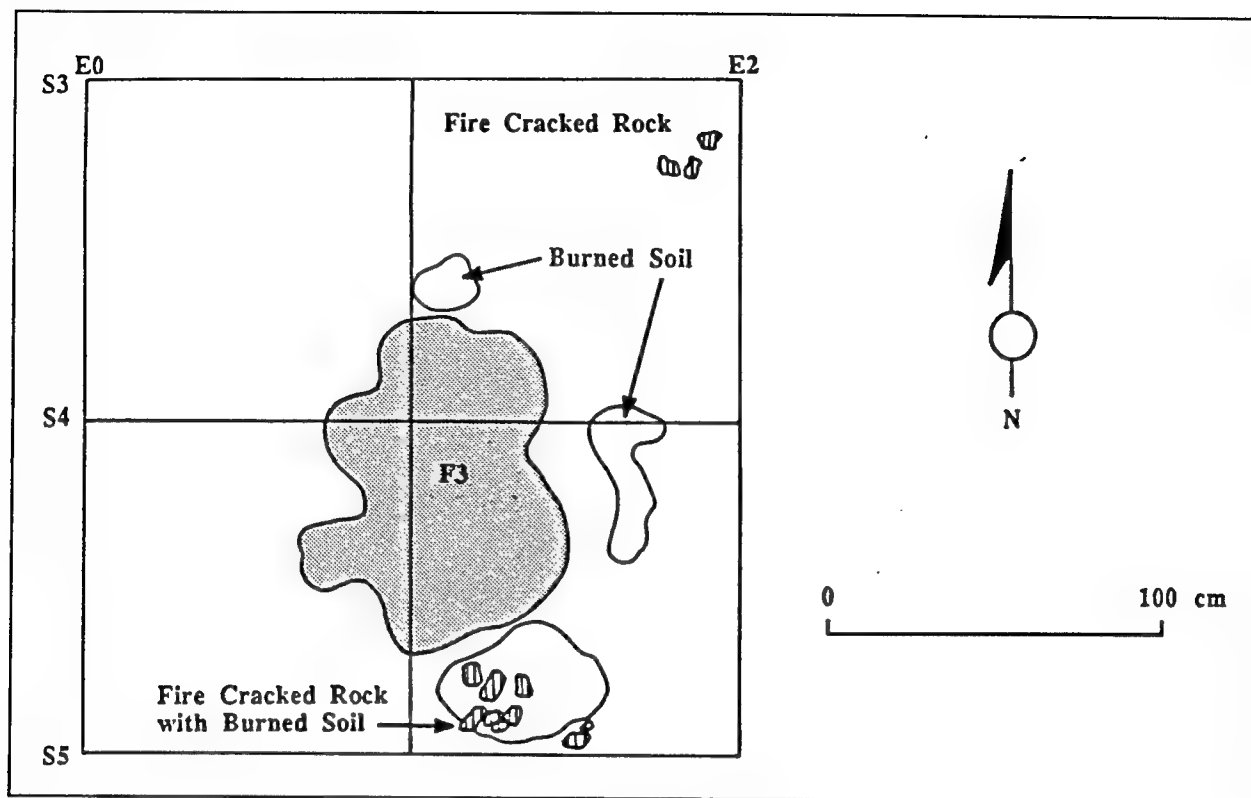


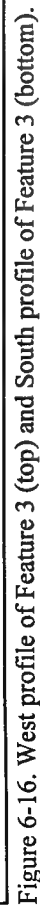
Figure 6-15. Plan view of Feature 3 as revealed at the base of Level 1.

reveals little information useful in assigning function. The most reasonable interpretation at present may be that this class of features represents various types of storage pits, later reused for trash receptacles.

Feature 2 was a large, roughly oblong pit located in the north central area of the block excavation (in Units 103, 107, and 108). The pit was oriented ca. north to south, and although it was not completely uncovered, it is estimated as having been about 1.6 m (5.2 ft) long and 0.9 m (2.95 ft) wide at the top of the B horizon, with a slight curve to the west (see Figure 6-7), and an area of ca. 1.26 m² (4.1 ft²). The base of the pit was somewhat irregular but was basically concave, giving it a "bath tub" shape with the deepest portion being located in the northern part (Figure 6-18). At its deepest, Feature 2 went to -10.66 m (ca. 67 cm [26.4 in] below surface) and was dug ca. 34-37 cm (13.4-14.6 in) not the B horizon. Feature 2 was first identified in the southwest corner of Unit 103; the fill being recognized by a high density of charred nutshell in Level 4, with the outline identified at 40 cm (15.7 in) below surface. During the later excavation of Unit 107, a dark stain in the area of Feature 2 was noted at the base of Level 2 (20 cm [7.9 in] below surface); and a close examination of the northern profile of this unit suggested that Feature 2 originated at least as high as -10.10 m (11-

13 cm [4.3-5.1 in] below surface), possibly higher. This would give Feature 2 a minimum vertical extent of 56 cm (22 in). The fill of Feature 2 consisted of a dark brown to dark grayish brown (10YR3/2 to 3/3 to 4/2) sandy silty loam, mottled with flecks of charcoal. In addition to the small portion of Feature 2 excavated from Unit 103 during testing, 128.75 liters of fill were removed from the Unit 108 portion of Feature 2 and water screened. A flotation sample of 18 liters was also collected and processed. Large amounts of charcoal and charred nutshell were noted in the deepest portion of the feature during excavation. In addition to large fragments of possibly deer cranium and antler, the pit fill contained fire-cracked rock, lithic debris, baked clay, bone, shell, and two projectile points (see Table 6-9). WS refers to water screened and F refers to flotation. A sample of charred nutshell and charcoal collected from the Unit 103 portion of Feature 2 during testing yielded a date of 920 ± 30 B.P. (SMU-1903), calibrated to A.D. 1120 ± 50.

Feature 6 is a portion of an apparently circular or oval-shaped pit, measuring about 85 cm (33.5 in) east to west, located in the northern portion of Unit 109 on the north side of the block excavation (see Figure 6-7). It was noted first at the base of Level 3 in this square, and subsequently was recorded and profiled at this level. It



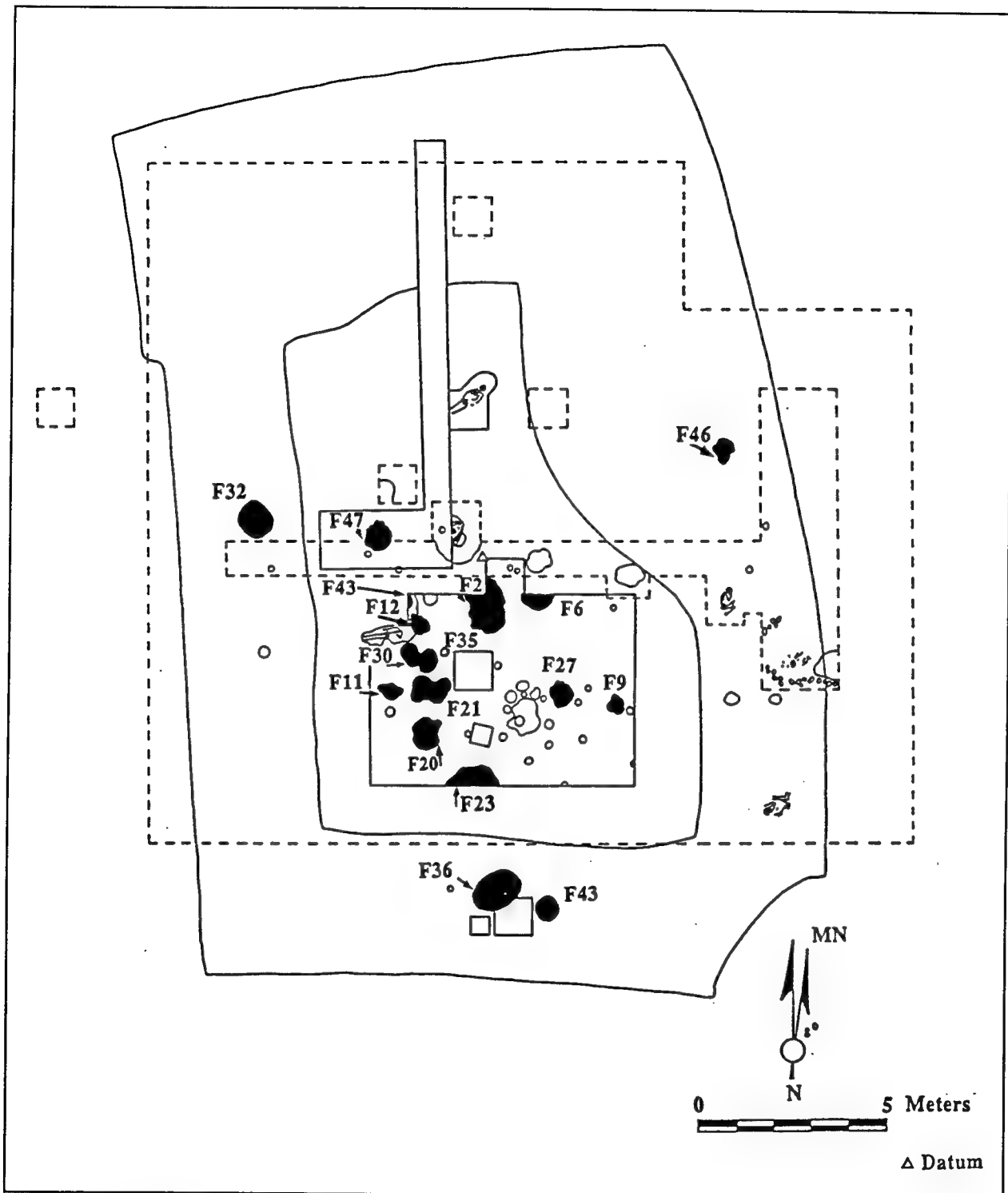


Figure 6-17. Location of large pits at 41DT80: the Thomas site.

appears to be a basin-shaped pit with an irregular, concave base, deepest on the western side, reaching a depth of

-10.48 m (ca. 44 cm [17.3 in] below surface) at the most (Figure 6-19a). The feature had been excavated about 35

TABLE 6-8

Metrical Data For Large Pits

Feature	Area (m ²)	Depth Below Datum (m)	Depth Below Surface (cm)	Volume Water Screened (liters)	Volume Floated (liters)
2	1.26	-10.66	67	+128.75 ¹	18
6	0.52	-10.48	44	57.5	19
9	0.18	-10.74	44	60	10
11	0.20	-10.66	60	50	13
12	0.22	-10.38	39	—	20
20	0.48	-10.625	52	25	15
21	0.58	-10.445	38	10	20
23	1.02	-10.90	74	120 (x2) ²	20
27	0.31	-10.58	42	10	—
30	0.27	-10.54	52	—	23
32	0.70	-10.52	50	57.5	20
35	0.25	-10.45	40	—	13
36	0.94	-10.86	50	130	20
39	0.31	-10.95	65	35	20
43	— ³	-10.38	44	—	2
46	0.25	-10.74	44	—	10
47	0.44	-10.60	70	20	20

¹ Water screened volume of feature 2 includes material from Unit 103 during testing.

² This includes one wheelbarrow of fill unmeasured but estimated to have doubled volume of fill from Feature 23.

³ Only small part of Feature 43 within block excavation-unable to estimate area of feature.

cm (13.8 in) into the B horizon at a maximum. Unfortunately the northern profile of Unit 109 did not give any indication of where Feature 6 originated. Within Unit 109, Feature 6 had an area of about 0.26 m² (0.85 ft²) and, assuming that half of the feature was excavated, an estimated total area of 0.52 m² (1.7 ft²). The fill of Feature 6 consisted of a dark gray silty loam (10YR4/1) which contrasted sharply with the surrounding yellowish brown B horizon (10YR5/6). This fill was mottled with charcoal flecks, baked clay, and shell bits. Nineteen liters of fill were collected for flotation, and an additional 57.5 liters were water screened through .25 inch (6.4 mm) mesh. A moderate amount of baked clay, shell, and fire-cracked rock, a little bone and charcoal, a few flakes, and some ceramics were recovered (see Table 6-9).

Feature 9 was a slightly irregularly shaped circular pit, located on the eastern side of the block excavation in Units 125 and 132 (see Figure 6-7). It measured ca. 51 cm (20.1 in) north-south by about 45 cm (17.7 in) east-west,

extended to a depth of -10.74 m, and was excavated ca. 19 cm (7.5 in) into the B horizon. It had a slightly irregular concave base but the profiled portion of the pit gives the impression that originally Feature 9 was less basin-shaped than either Feature 2 or Feature 6 (Figure 6-19b). Feature 9 had an area of ca. 0.18 m² (0.6 ft²). The feature fill consisted of a dark brown silty loam (10YR3/3). A total of 10 liters of fill were floated and examined. An additional 60 liters of fill were water screened, but contained notably few artifacts (see Table 6-9).

Feature 11 was an elongated oval pit located in Unit 119 in the west central portion of the block excavation (see Figure 6-7). It measured about 41 cm (16.1 in) north-south by 66 cm (26 in) east-west, had a surface area of about 0.20 m² (0.6 ft²), and was quite deep with a flattened concave bottom (Figure 6-20). At its deepest it went to -10.66 m, being dug into the B horizon for a depth of about 22 cm (8.7 in). The sides of Feature 11 diverged noticeably upward from the base, indicating that the top of

TABLE 6-9
Contents Of Large Pits By Recovery Method

Feature ¹	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Ceramic	Baked Clay ²	Bone ²	Shell ²	Charcoal ^{2,3}	Burned Rock
2 WS ⁴	2	—	—	18	—	—	122	118	121	4	35
F	—	—	—	21	—	—	49	26	18	57	7
6 WS	—	—	3	5	—	2	19	1	32	2	15
F	—	—	—	10	—	—	26	16	26	11	7
9 WS	1	1	—	2	—	—	7	2	5	1	1
F	—	1	—	4	—	—	9	22	12	5	12
11 WS	1	1	—	2	—	—	28	12	10	1	3
F	1	—	—	11	—	—	36	11	19	12	2
12 F	—	—	—	21	—	—	50	12	17	6	4
20 WS	—	—	—	—	—	—	2	2	2	—	2
F	1	—	—	13	—	—	41	10	26	28	12
21 WS	—	—	—	5	—	—	2	2	6	1	5
F	—	—	—	18	—	—	63	27	13	12	14
23 WS	3	4	4	15	—	5	397	166	80	—	122
F	—	—	—	14	—	1	4	32	17	21	23
27 WS	—	—	—	1	—	—	1	11	3	1	—
F ⁵	—	—	—	15	—	—	35	41	2	5	5
30 F	—	—	—	16	—	—	5	8	9	10	—
32 WS	—	2	—	6	1	3	37	113	28	5	29
F	—	—	—	10	—	—	15	32	18	17	6
35 F	—	—	—	11	—	—	2	6	20	6	3
36 F	—	—	—	10	—	—	31	16	8	6	8
WS	—	1	2	8	—	1	89	104	63	—	34
39 WS	—	—	—	—	—	—	10	13	4	—	12
F	—	—	—	6	—	—	27	17	17	6	15
43 F	—	—	—	1	—	—	4	3	1	2	—
46 F	—	—	—	3	—	—	2	6	13	6	24
47 WS	—	1	—	3	1	2	8	23	11	1	13
F	—	—	—	6	—	1	58	50	15	10	11
Total	9	11	9	255	2	15	1,179	902	616	236	424

¹ F denotes flotation and includes only material from heavy fraction and #6 screen larger than 2.5 mm, except for lithic debris and FCR which include material smaller than 2.5 mm, WS denotes water screened.

² Baked clay, bone, shell, and charcoal are enumerated in grams; all other categories are enumerated in counts.

³ Water screened refers to weight of charcoal only; flotation refers to weight of both charcoal and macrobotanical remains.

⁴ These figures do not include Feature 2 excavated in Unit 103 during testing phase.

⁵ Processed as Feature 29 (posthole).

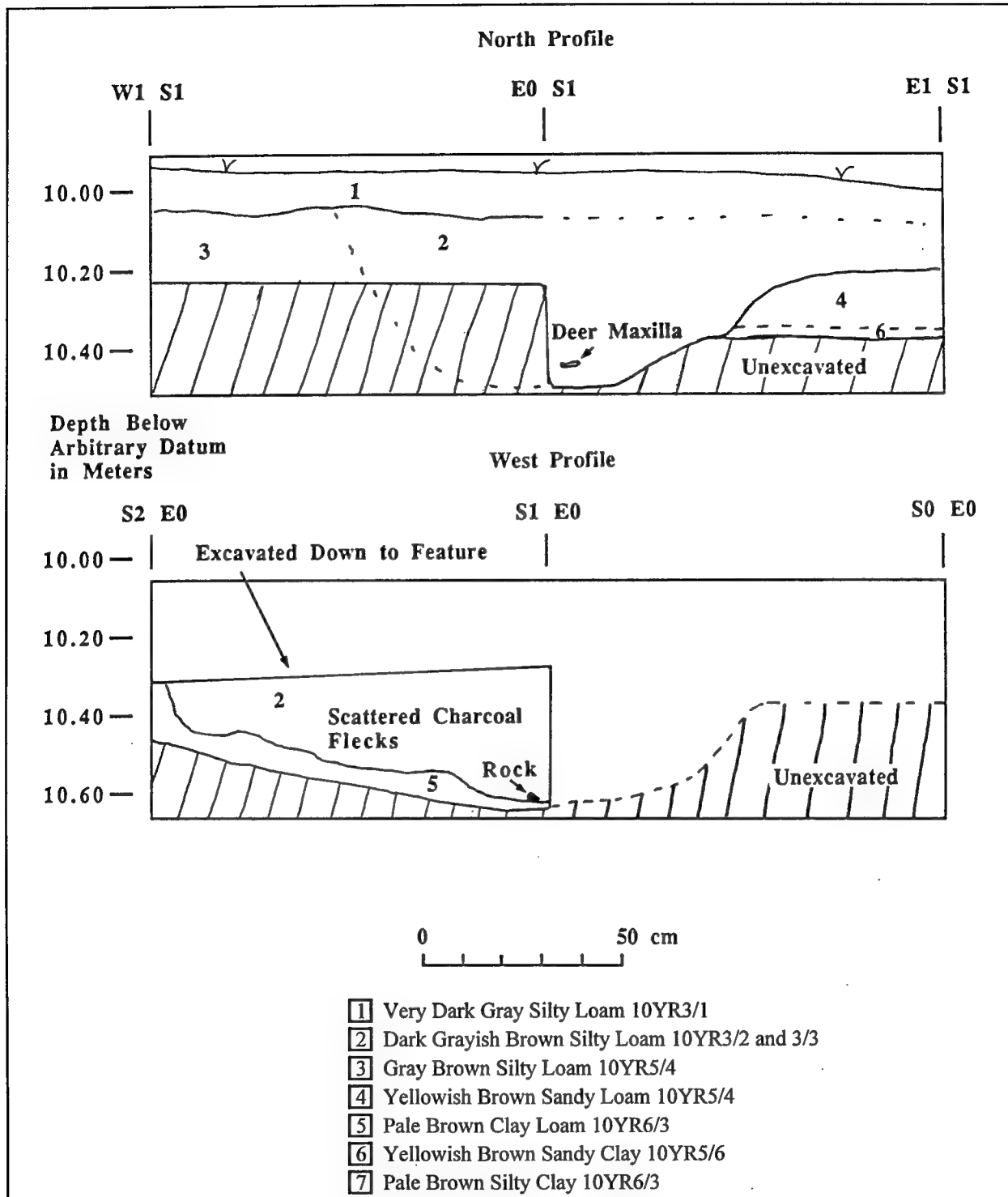


Figure 6-18. East-west and north-south profiles of Feature 2.

the feature covered a larger area than indicated by its plan at the base of Level 3. The fill of Feature 11 consisted of a very dark grayish brown silty loam (10YR 3/2) with

several large flecks of charcoal. A flotation sample of 13 liters was collected from the pit, together with an additional 50 liters for water screening. This feature

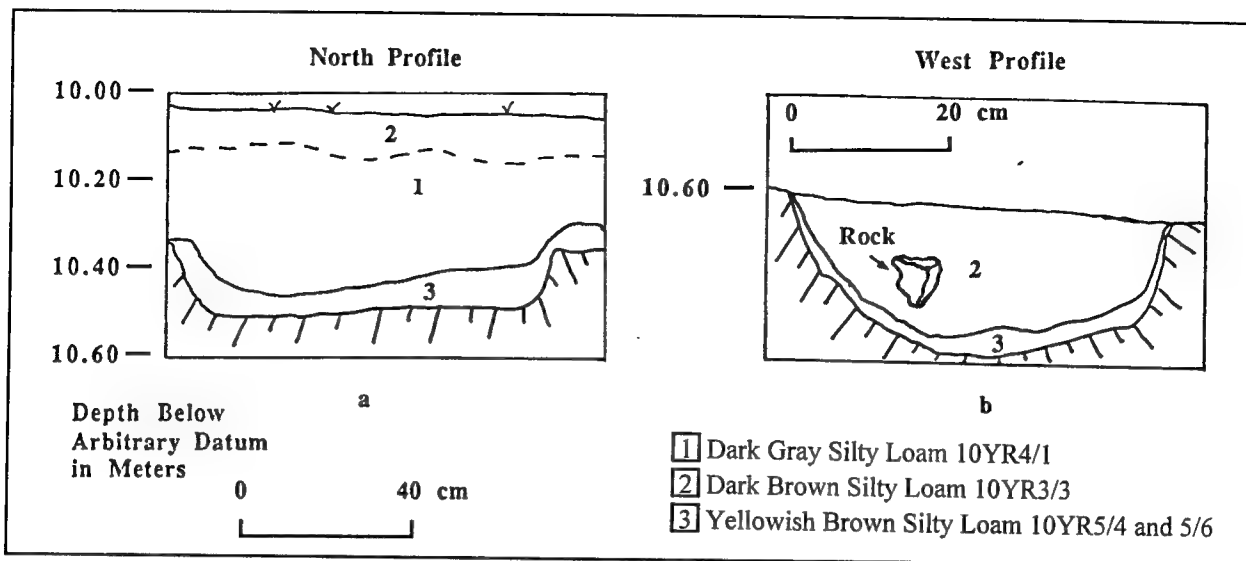


Figure 6-19. North profile of Feature 6 (a) and west profile of Feature 9 (b).

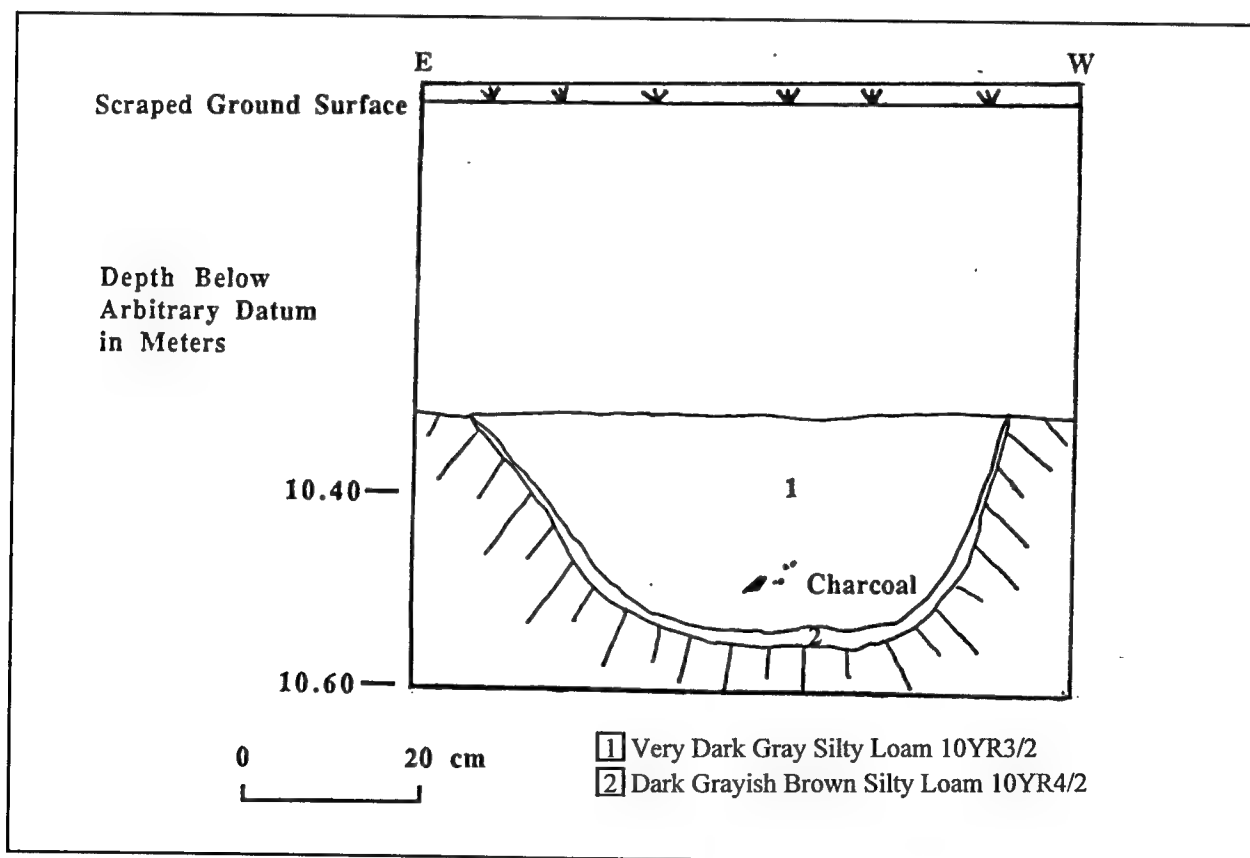


Figure 6-20. East-west profile of Feature 11.

contained low frequencies of lithics and fire-cracked rock, but moderate amounts of baked clay, bone, and shell (see Table 6-9).

Feature 12 refers to a roughly circular pit with an irregular outline located in the northwest corner of the block excavation. It was almost entirely within Unit 106,

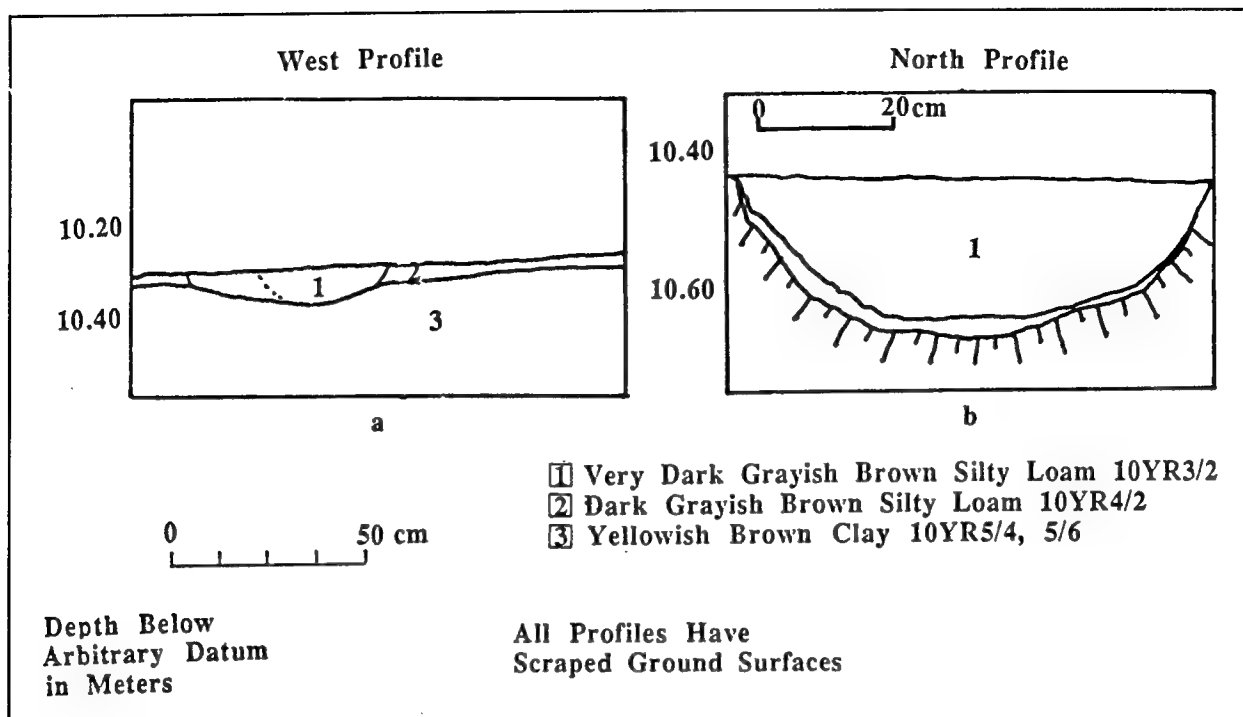


Figure 6-21. West profile of Feature 12 (a) and north profile of Feature 20 (b).

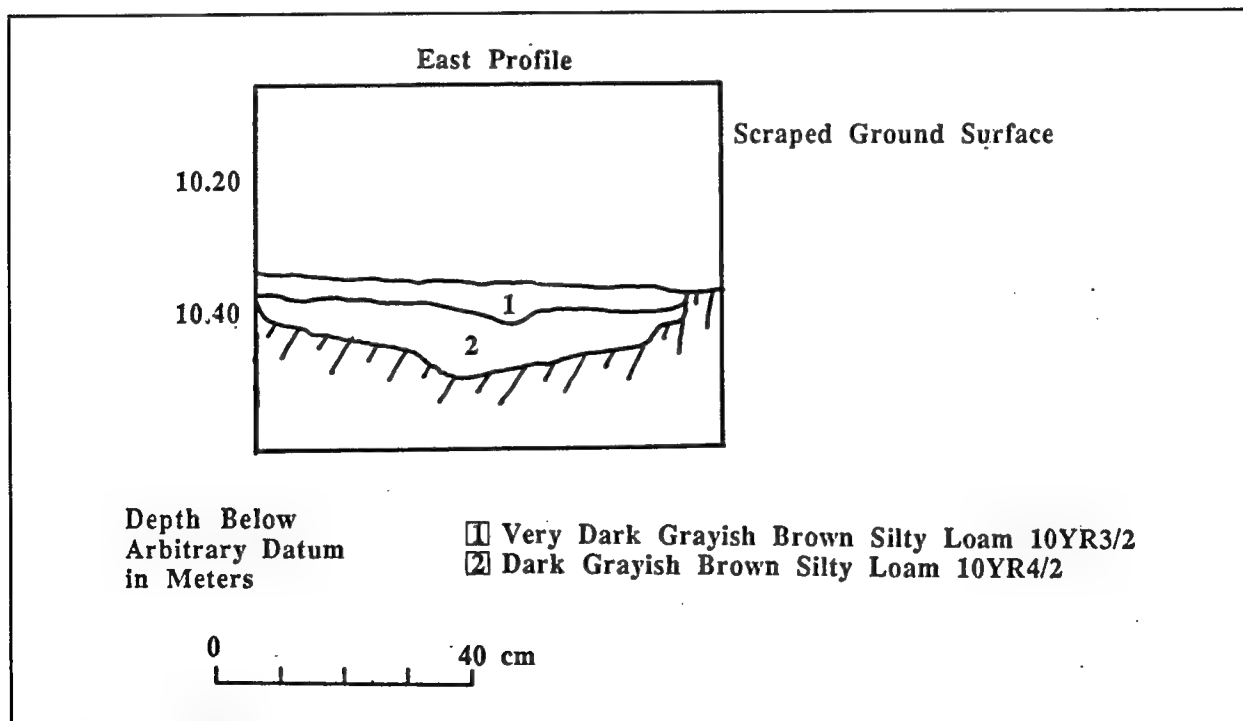


Figure 6-22. East profile of Feature 21.

with some overlap into Unit 113 (see Figure 6-7). The feature measured about 43 cm (16.9 in) north-south by 50

cm (19.7 in) east-west, covered an area of about 0.22 m² (0.7 ft²) and went to a depth of -10.38 m, only about 4 cm

(1.6 in) into the B horizon (Figure 6-21a). It had a concave base and may have formed a basin-shaped pit with a wider top than mapped. The shallowness of Feature 12 correlates well with its apparent lateness in the occupation of the Thomas site, indicated by the fact that it was intrusive into the early hearth (e.g., Feature 48) and the later Burial 6 (e.g., Feature 45). A relatively homogeneous, compact very dark grayish brown silty loam (10YR3/2) with some ash mottling in the southern portion filled the pit. Very little fill was recovered from Feature 12, but 20 liters were collected for flotation. A sample of charred nutshell and charcoal from the flotation sample at the bottom of the pit was radiocarbon dated to 920 ± 110 years B.P. (SMU-1968), calibrated to A.D. 1110 ± 110 .

Feature 20 consisted of a moderately large, circular pit with an irregular outline located in the southwestern portion of the block excavation. It was largely in Unit 127, with some slight overlap into Unit 134 (see Figure 6-7). Feature 20 measured about 82 cm (32.3 in) north-south by 71 cm (27.9 in) east-west, and covered an area of about 0.48 m^2 (1.6 ft^2). The pit had a concave base and went to a total depth of -10.625 m (ca. 52 cm [20.5 in] below surface), being excavated about 19 cm (7.5 in) into the B horizon (Figure 6-21b). The pit fill consisted of a very dark grayish brown silty loam (10YR3/2). Fifteen liters of fill were removed for flotation, in addition to about 25 liters excavated and water screened. The fill contained almost no artifactual material and only moderate amounts of baked clay, bone, and shell (see Table 6-9).

Feature 21 was a moderately large pit with an irregular "hourglass" shape located in the east central area of the block excavation (see Figure 6-7). It measured about 67 cm (26.4 in) north-south at the widest point, 101 cm (39.76 in) east-west at the longest, and covered an area of about 0.58 m^2 (1.9 ft^2). Given its unusual shape, it is possible that Feature 21 was two overlapping pits, but nothing was noted during excavation to support this interpretation (in contrast to Features 30 and 35, see below). The bottom of Feature 21 was generally flat, but nothing was left of the sides to indicate whether it was straight-walled or outflaring (Figure 6-22). At its deepest, it went to -10.445 m (ca. 38 cm [14.96 in] below surface). It was excavated into the B horizon no more than 5 cm (2 in) or so. The fill was a very dark grayish brown silty loam (10YR3/2) mottled with charcoal, bits of bone, and fire-cracked rock. Of the 30 liters or so of fill excavated from Feature 21, 20 liters were collected for flotation and the other 10 liters were water screened. The pit fill contained a small quantity of flakes and fire-cracked rock,

together with small amounts of baked clay, bone, shell, and a little charcoal (see Table 6-9).

Feature 23 was a large basin-shaped pit located in the south central portion of the block excavation and partially excavated in Units 135 and 136 (see Figure 6-7). It appeared to be oval and measured 120 cm (47.2 in) east-west. Since the southern half of the feature was outside the block, the exact shape and north-south dimension is unknown. The excavated portion of Feature 23 covered ca. 0.51 m^2 (1.7 ft^2), and it is estimated that the total pit was about 1.02 m^2 (3.3 ft^2). The pit was deep with a concave base and steeply sloping sides (Figure 6-23). It went to a depth of about -10.90 m (ca. 74 cm [29.1 in] below surface) and was excavated into the B horizon for about 38 cm (15 in). The pit fill consisted of a brown to dark brown compact silty loam (10YR4/3) mottled with flecks of charcoal, both burnt and unburned bone, fired clay, and ash. Twenty liters of fill were collected for flotation along with 120 liters for water screening. Feature 23 contained a large quantity of artifactual material and burned rock, in addition to a large amount of baked clay, bone, and shell (see Table 6-9). A radiocarbon sample of carbonized nutshell excavated from the lower portion of Feature 23 yielded a date of 858 ± 28 B.P. (SMU 2025), calibrated to A.D. 1190 ± 30 .

Feature 27 referred to a medium, circular pit located in the east central portion of the excavation block, in Units 123 and 124 (see Figure 6-7). It measured ca. 67 cm (26.4) north-south by 65 cm (25.6) east-west, and covered an area of about 0.31 m^2 (1 ft^2). It had a concave base and went to a depth of -10.58 m (ca. 42 cm [16.5 in] below surface), being excavated about 9 cm (3.5 in) into the B horizon at the most (Figure 6-24). The fill of Feature 27 consisted of a grayish brown silty loam (10YR5/2). The 10 liters of fill that were water screened contained only one flake and a small amount of baked clay, shell, and charcoal, with slightly more bone (see Table 6-9).

Feature 30 was an oval pit located in the northwest area of the block excavation, in Units 112 and 113, and slightly overlapping Feature 35 (see Figure 6-7). It was oriented northwest and measured about 70 cm (27.5 in) long by 42 cm (16.5) wide, while covering an area of about 0.27 m^2 (0.9 ft^2). The section below the base of Level 3 seemed to be that of a flat bottomed pit with several deeper irregularities where the base met the sides and in the southwestern area of the feature (Figure 6-25). The base of Feature 30 generally was at about -10.41 m (ca. 40 cm [15.7] below surface), while the deeper areas close to the walls went to as much as -10.43 m (ca. 42.5

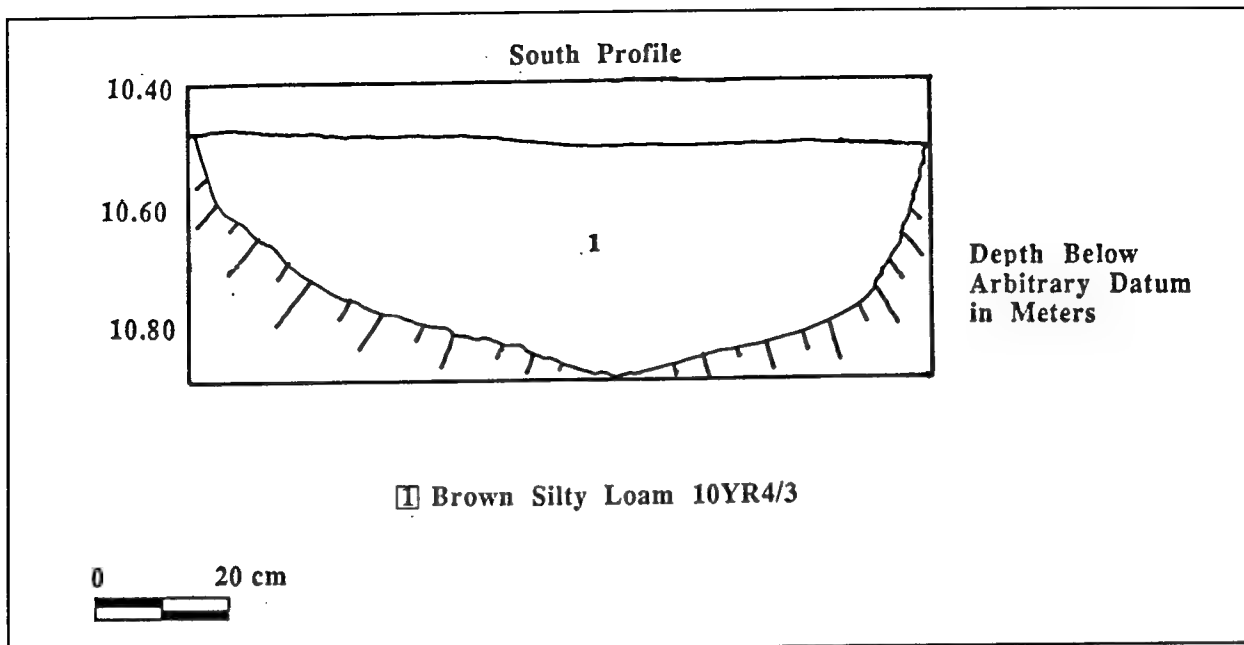


Figure 6-23. South profile of Feature 23.

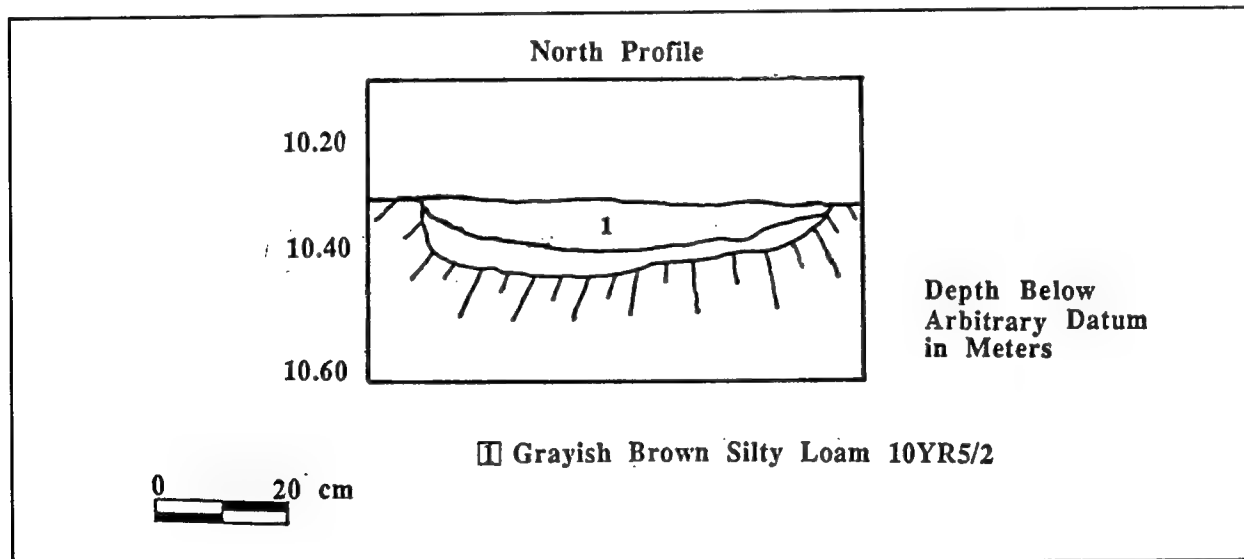


Figure 6-24. North profile of Feature 27.

cm [16.7 in] below surface). This area has the appearance of an intrusive posthole in the north-south profile, but an examination of the east-west section of Features 30 and 35 makes it clear that this is part of the pit (see Figure 6-27). Feature 30 was excavated into the B horizon between 5-17 cm (2-6.7 in). The fill of this feature consisted of a grayish brown silty loam (10YR5/2) with flecks of

charcoal. Twenty-three liters of this feature were saved for flotation. Only a small amount of material was recovered from this feature (see Table 6-9).

Feature 32 is a roughly circular pit located in the machine scraped area of the site, about 5 m (16.4 ft) northwest of the block (see Figure 6-17). It measures ca.

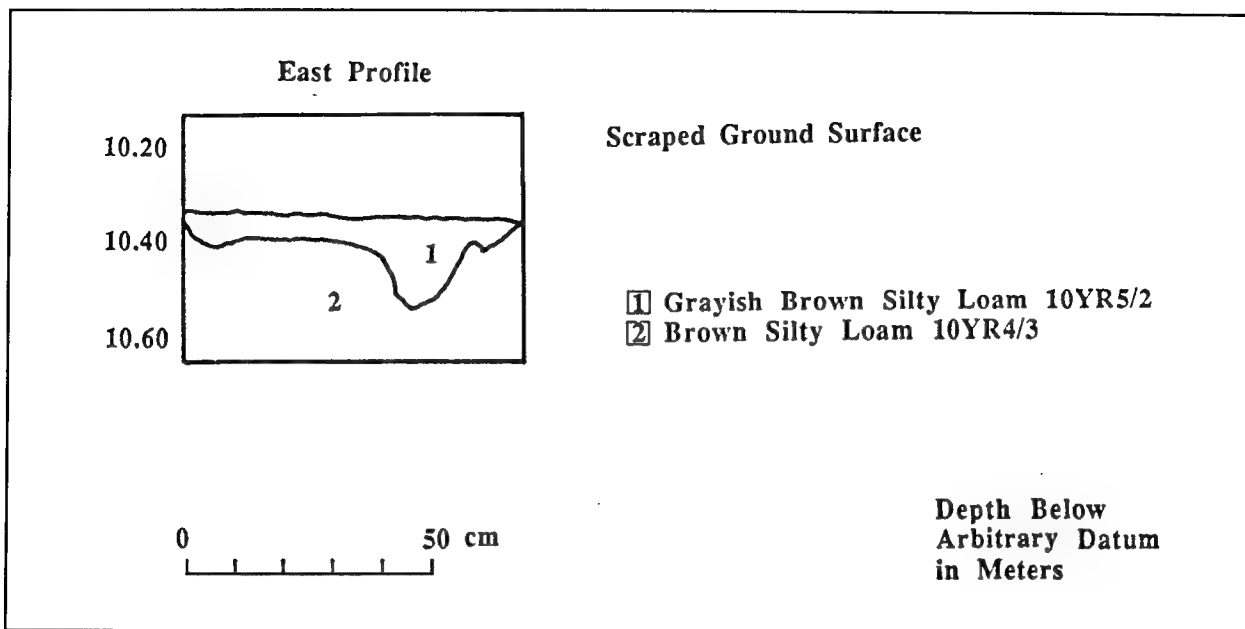


Figure 6-25. East profile of Feature 30.

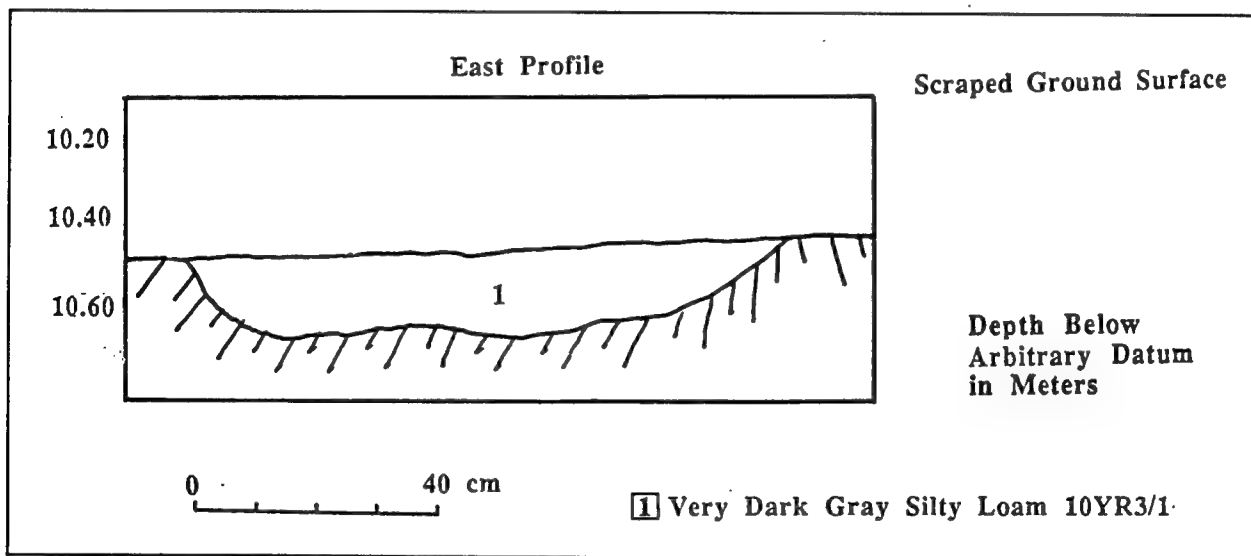


Figure 6-26. East profile of Feature 32.

100 cm (39.4 in) north-south by 95 cm (37.4 in) east-west, and is about 0.70 m² (2.3 ft²) in area. In section, Feature 32 appeared to have a flat bottom (Figure 6-26) which turned up at the sides of the pit. Without any more of the feature, it was impossible to tell whether it had straight sides or flaring walls. Feature 32 went to a depth of about -10.52 (ca. 50 cm [19.7 in] below surface), with about 13 cm (5.1 in) left after scraping. The fill of Feature 32 consisted of a very dark gray silty loam (10YR3/1) with flecks of yellow clay. Twenty liters of fill were collected

for flotation, and the remaining 57.5 liters were water screened through 0.25 in (6.4 mm) mesh. Feature 32 contained a number of artifacts and fire-cracked rock, with a moderate amount of baked clay, bone, shell, and a little charcoal (see Table 6-9).

Feature 35 was a relatively small, oval pit almost entirely located within Unit 113, with some overlap into Unit 120, in the northwestern area of the block excavation (see Figure 6-7). Feature 35 was oriented slightly east of

north and measured ca. 65 cm (25.6 in) long by 45 cm (17.7 in) wide. Feature 35 overlapped slightly with Feature 30, but there was no way of telling which of the two was the more recent. Feature 35 is estimated to have a surface area of 0.25 m² (0.8 ft²). The east-west section of Feature 35 showed it to have a relatively flat bottom, with a dip on the eastern side but an abrupt corner turning up to a presumably steep wall (Figure 6-27). The maximum depth on the eastern side of the pit was -10.45 (ca. 40 cm [15.7 in] below surface), while the general base of Feature 35 was -10.41 (ca. 37 cm [14.6 in]) below surface. It had apparently been excavated 5-9 cm (2-3.5 in) into the B horizon. The fill of the feature consisted of a grayish brown silty loam and 13 liters were recovered for flotation (see Table 6-9).

Feature 36 was a large, oval pit located about 3 m (9.8 ft) due south of the excavation block in the area of machine scraping. It had been slightly cut into by Unit 104 during testing, but was not designated as a feature at that time. The pit was oriented northeast-southwest and measured ca. 125 cm (49.2 in) long by ca. 95 cm (37.4 in) wide. The surface area is estimated at 0.94 m² (3.1 ft²), making it one of the largest pits excavated at the Thomas site. The section showed Feature 36 to have an irregular concave base that went to a depth of -10.86 cm (ca. 50 cm [19.7 in] below surface). The pit was preserved to a depth of about 19 cm (7.5 in) below the scraped level (Figure 6-28). The fill consisted of a very dark grayish brown silty loam (10YR3/2) mottled with flecks of charcoal, several patches of what may have been fired earth, and ash. No evidence of firing was noted on the margins of the pit. The excavated portion contained 150 liters of fill, 20 liters of which were saved for flotation, with the remainder being water screened. The fill contained a small quantity of artifacts, a number of fire-cracked rocks, and a sizeable amount of baked clay, bone, and shell (see Table 6-9).

Feature 39 consisted of a medium, circular pit located in the machine scraped area, about 3 m (9.8 ft) south of the block excavation. It measured about 66 cm (26 in) north-south by 69 cm (27.1 in) east-west and covered an area of ca. 0.31 m² (1 ft²). The pit was concave in section with a somewhat pointed bottom (Figure 6-29). It went to a maximum depth of -10.95 m (ca. 65 cm [25.6 in] below surface) with about 31 cm (12.2 in) of the pit preserved below the scraped surface. The fill of Feature 39 consisted of a dark brown silty loam (10YR3/3) mottled with flecks of charcoal. Thirty-five liters of fill from this feature were water screened, with an additional 20 liters saved for flotation. The fill revealed a moderate amount of fire-cracked rock, baked clay, bone, and shell (see Table 6-9).

Feature 43 referred to a small portion of an apparent pit in the extreme northwest corner of the block excavation, in Unit 106 (see Figure 6-7). Since only a portion of Feature 43 was within the limits of the block excavation, it is impossible to be sure of its exact dimensions or area, but the portion of the feature revealed in the west profile of Unit 106 showed it to have the basin-shaped appearance of a large pit (see Figure 6-8). Feature 43 seemed to originate at about -10.22 m (ca. 28 cm [11 in] below surface) and to go to about -10.38 m (ca. 44 cm [17.3 in] below surface) with a relatively flat bottom and gradually sloping sides. Along with Features 12 and 45 (Burial 6) it was intrusive into the early hearth, Feature 48, and seemed to originate from the same surface as Feature 45. This would place it later than Feature 48 but earlier than Feature 12. The fill of Feature 43 consisted of grayish brown loamy silt (10YR5/2) which was heavily mottled with flecks of ash, fired clay, and charcoal (presumably a result of intruding through Feature 48). Only a small portion of this feature was excavated from Unit 106, resulting in a flotation sample of only 2 liters and no material for water screening (see Table 6-9).

Feature 46 was a generally oval pit with an irregular outline located in the machine scraped area, about 5 m (16.4 ft) northeast of the block excavation (see Figure 6-17). It was oriented roughly north to south, and was 65 cm (25.6 in) long by 53 cm (20.9 in) wide. The area of Feature 46 is estimated as having been about 0.25 m² (0.8 ft²) and appeared to be a flat bottomed pit, although the form of the side walls was not reconstructible (Figure 6-30). The base of the feature was at a depth of about -10.74 m (ca. 44 cm [17.3 in] below surface), with only about 4-5 cm (1.6-2 in) preserved below the scraped surface. The fill consisted of a dark brown silty loam (10YR3/3) with little mottling. A flotation sample of 10 liters was collected, with no material remaining for water screening (see Table 6-9).

Feature 47 was a large, circular pit with an irregular outline located in the backhoe scraped area northwest of the block excavation (see Figure 6-17). It measured about 75 cm (29.5 in) east to west and 80 cm (31.5 in) north to south at the most, and was about 0.44 m² (1.4 ft²) in area. It had a concave base with the suggestion of slightly flaring or vertical walls in the portion of the pit left by the scraping (Figure 6-31). The bottom of the feature was at -10.60 m (ca. 70 cm below surface), with about 17 cm (6.7 in) of the pit left below the base of the scraping. The fill of Feature 47 consisted of a very dark grayish brown silty loam (10YR3/2). Twenty liters were removed from the feature for the flotation sample, with an additional 20 liters being water screened. A handful of tools and other

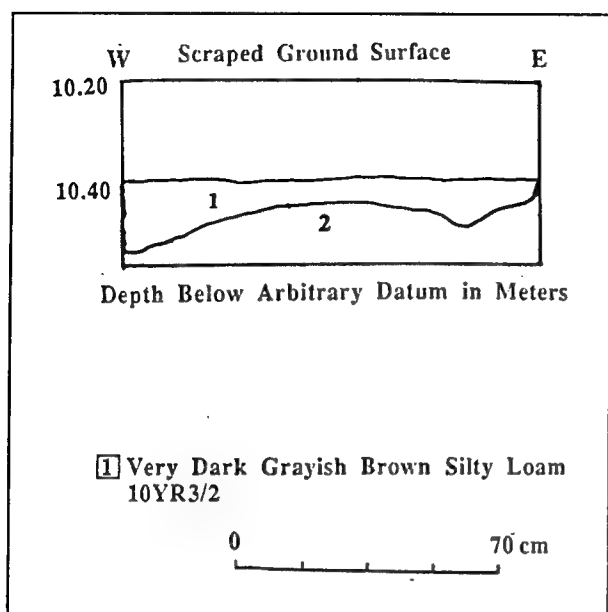


Figure 6-27. East-west profile of Feature 35.

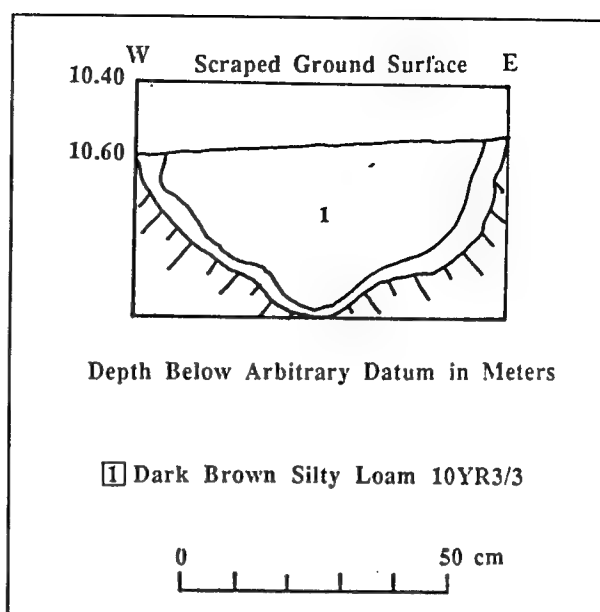


Figure 6-29. East-west profile of Feature 39.

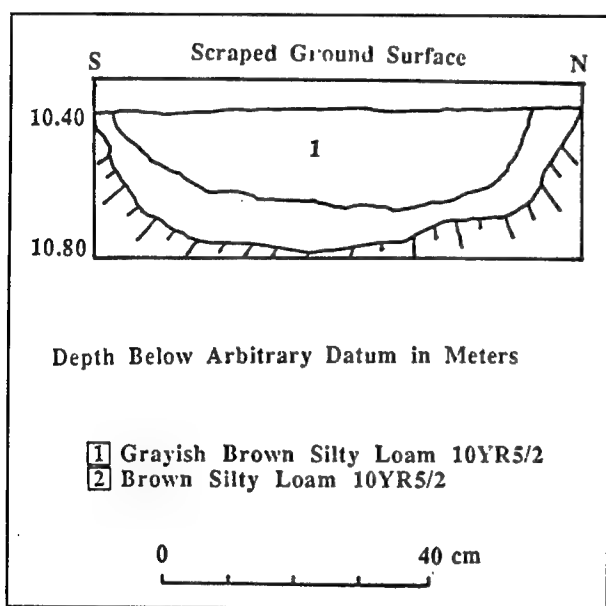


Figure 6-28. North-south profile of Feature 36.

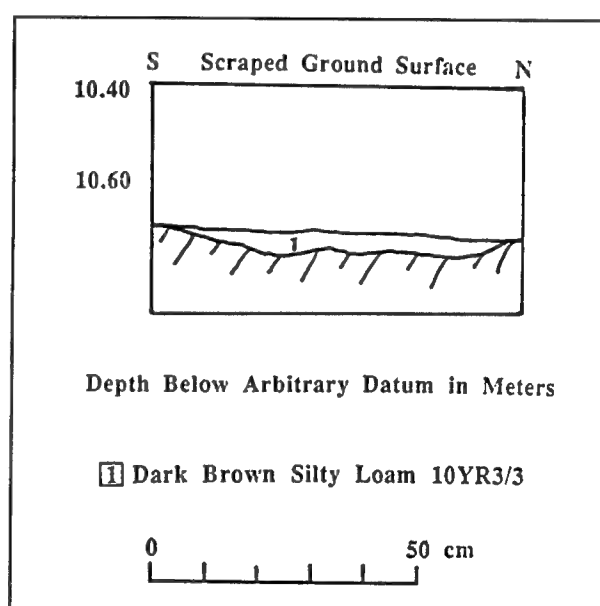


Figure 6-30. North-south profile of Feature 46.

artifacts, a moderate amount of fire-cracked rock, and bone, and low frequencies of baked clay, shell, and charcoal were recovered (see Table 6-9).

Small Pits/Large Postholes

The seven features referred to as "small pits or large postholes" represent a class of features that is intermediate in size between what have been described as "large pits"

and what can reasonably be called "postholes." They range (Table 6-10) between 0.05-0.09 m² (0.2-0.3 ft²) with an average size of ca. 0.07 m² (0.22 ft²). They all are circular to oval in shape (Table 6-11) with lengths ranging between 0.27-0.41 m (0.9-1.3 ft), and widths from 0.24-0.32 m (0.8-1.0 ft). They also display quite a bit of variation in regard to both depth below datum and depth below surface.

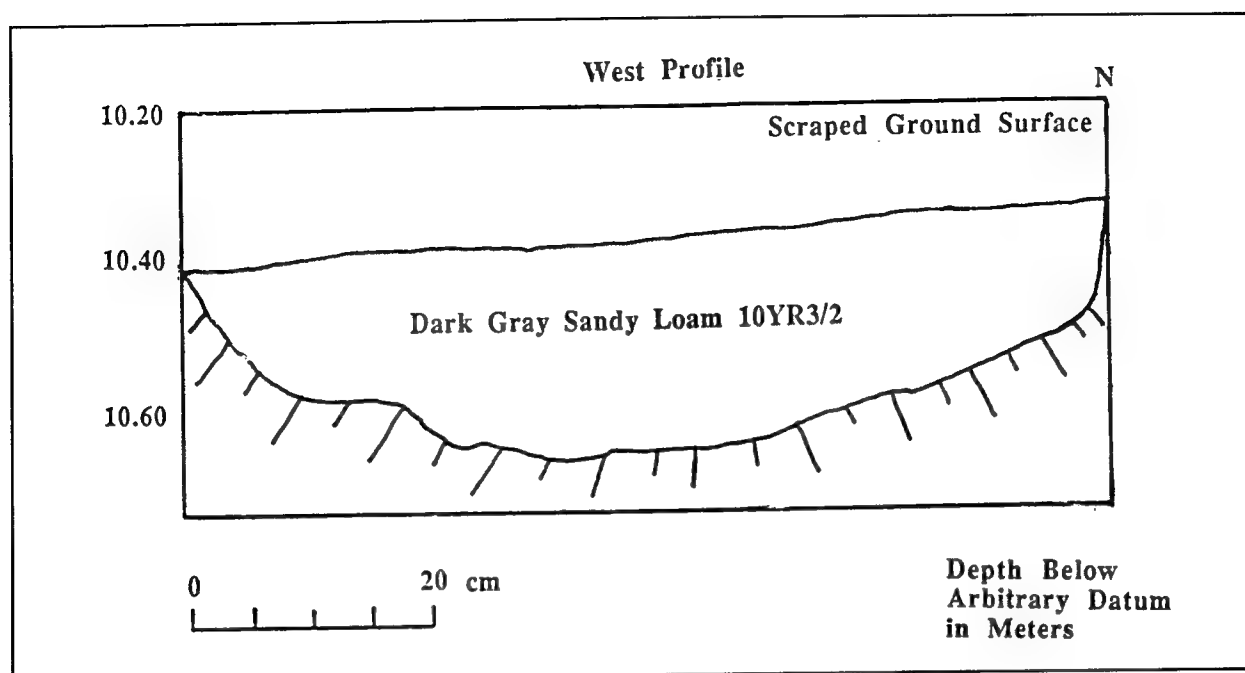


Figure 6-31. West profile of Feature 47.

TABLE 6-10

Metrical Data For Small Pits/Large Postholes

Feature	Area Below Datum (m ²)	Depth Below Surface (m)	Depth Water Screened (cm)	Volume Floated (liters)	Volume (liters)
4	0.09	-10.46	33	3.3	10
13	0.06	-10.58	48	—	9
25	0.08 ¹	-10.51	54	—	10
38	0.07	-10.50	35	—	6 ²
40	0.08	-10.89	44	—	5
41	0.06	-10.905	40.5	—	5 ³
49	0.05	-10.53	63	—	3

¹ Feature 25 appears to be composed of two postholes, the earlier of which is reconstructed as being .04 m² the later as .05 m².

² Feature 38 flotation lost, believed processed as one of the two Feature 8 bags. Also mixed?

³ Apparently mixed with Feature 42 in processing, Feature 42 non-macrobotanical remains separated as well as possible. Also mixed?

Three of these features were located within the limits of the excavation block (Features 4, 13, and 25), while the remaining four were all outside the block (Figure 6-32): three in the machine scraped area (Features 38, 40, 41) and one in the area cleared by the backhoe northwest of the block (Feature 49). The fill of all of these features

consisted of silty loam with varying degrees of mottling from redeposited B horizon clay and charcoal (see Table 6-11). The majority of these features were very dark grayish brown to dark brown (10YR3/2-3/3) in color, with several being slightly lighter: dark grayish brown to dark brown or brown (10YR4/2-4/3).

TABLE 6-11

Descriptive Data For Small Pits/Large Postholes

Feature	Unit	North-South Diameter (m)	East-West Diameter (m)	Description of Fill
4	122	0.36	0.32	Mottled dark grayish brown to dark brown silty loam (10YR3/2-3/3) mixed with brownish yellow silty loam
13	126	0.28	0.30	Very dark grayish brown silty loam (10YR3/2)
25 ¹	106	—	0.31 ²	Very dark grayish brown silty loam (10YR3/2) mottled with flecks of very pale brown silty clay (10YR7/4)
38	—	0.30	0.28	Dark grayish brown silty loam (10YR4/2) mottled with flecks of charcoal
40	—	0.30	0.41	Brown to dark brown compact silty loam (10YR4/3) mottled with a few flecks of charcoal
41	—	0.24	0.31	Dark brown silty loam (10YR3/3) mottled with flecks of charcoal and redeposited silty clay B horizon
49	—	0.24	0.27	Dark brown silty loam (10YR3/3)

¹ This feature was distinguished in the north profile of Unit 106, with the result that its north-south diameter is unknown.

² In section, Feature 25 appeared to be composed of two overlapping pits or postholes. The earlier of these is estimated at .21-.22 m diameter, the later at .25 m diameter.

Feature 4 had an irregular concave base in cross section (Figure 6-33a) and appeared to be intrusive into the fired soil associated with the use of the Feature 3 hearth. Although Feature 4 was not visible at the base of Level 1, where Feature 3 appeared, its intrusive nature suggests that it may have been contemporaneous with, or post-dated, Feature 3. High frequencies of baked clay and fire-cracked rock suggest that Feature 4 may have functioned as a trash pit associated with the utilization of the hearth (Table 6-12).

Feature 13 showed a somewhat irregular cross section, with a shallow concave bottom, one generally vertical wall, and a second diverging wall (Figure 6-33b). The artifactual contents of this feature do not seem to be unusual and it is possible that Feature 13 originally functioned as a large posthole. A similar function can be postulated for Feature 25, which actually appeared to consist of two overlapping postholes (Figure 6-34a). The earlier of these had a concave bottom with vertical walls, while the later showed only the concave bottom typical of other postholes. Feature 38, located to the west of the block, also may have been a large posthole, based more on size than any other criteria. The preserved profile showed a generally flat bottom with concave walls at the base (Figure 6-34b).

Features 40 and 41 were similar in both having a roughly oval shape, with a shallow concave base in the case of Feature 40 and an irregular flat base in the case of Feature 41 (Figures 6-35a and 6-35b). These shape discrepancies may be the result of Features 40 and 41 having functioned as small pits but the contents suggest otherwise. Considering the small size of the flotation sample, Feature 40 shows relatively high frequencies of baked clay, bone, shell, and fire-cracked rock (see Table 6-12). Feature 41, on the other hand, shows low frequencies of cultural material, more in line with the content of a posthole. Such a functional interpretation is supported also by its smaller size in comparison to Feature 40 (see Table 6-10). Finally, Feature 49 had a slightly oval plan, but in cross section seemed to have the concave bottom typical of postholes (Figure 6-36). In regard to contents, Feature 49 did not show unusually high frequencies of any type of cultural material, supporting its interpretation as a posthole (see Table 6-12).

In summary, of this class of intermediate sized features, two seem to stand out as small pits, while the remaining five may be large postholes. The two possible pits (Features 4 and 40) show the largest surface area (0.09-0.08 m² [0.3-0.26], respectively) but the shallowest depth below surface (33-35 cm [13-13.8 in], respectively).

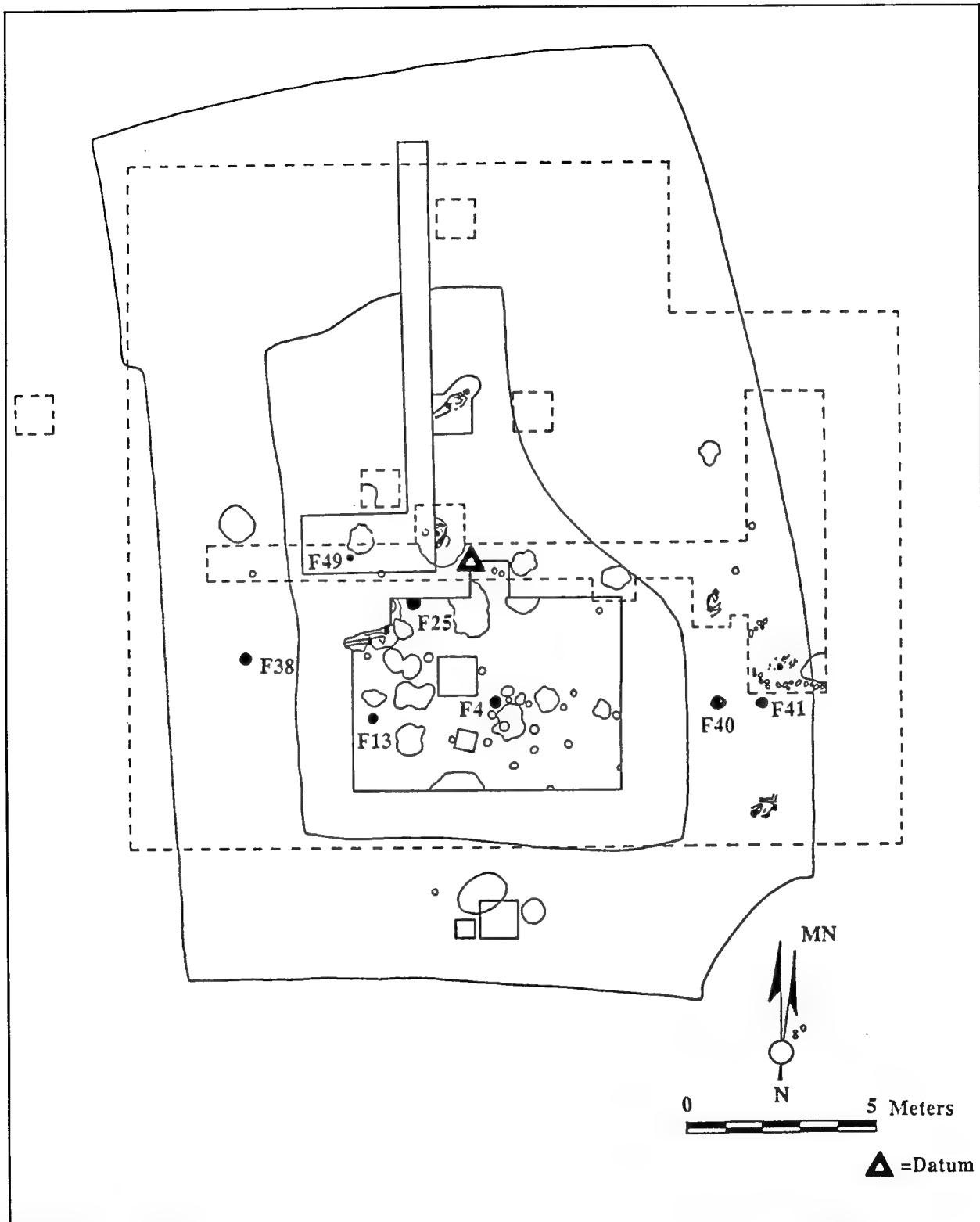


Figure 6-32. Location of small pits and large postholes excavated at 41DT80: the Thomas site, in 1987.

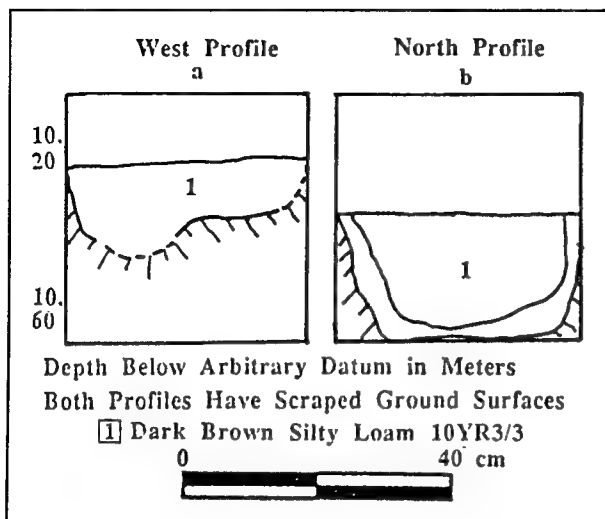


Figure 6-33. West profile of small pit Feature 4 (a) and north profile of large posthole Feature 13 (b).

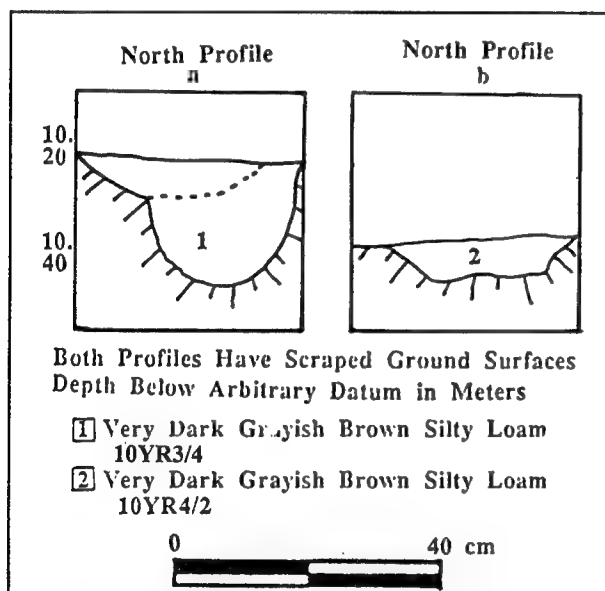


Figure 6-34. North profiles of large posthole Feature 25 (a) and large posthole Feature 38 (b).

These stand in contrast to the apparent large postholes (Features 13, 25, 38, 41, and 49), none of which are larger than 0.07 m² (0.3 ft²) or less than 40 cm (15.7 in) below the surface (the area of Feature 25 includes two overlapping smaller postholes). In regard to contents, Features 4 and 40 also stand out, having high frequencies of baked clay, bone, and fire-cracked rock, with a moderate amount of shell. The features interpreted as large postholes have much more moderate amounts of all artifact and nonartifact categories (see Table 6-12).

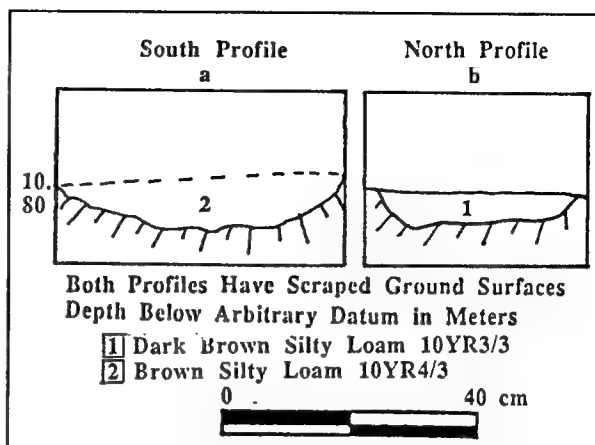


Figure 6-35. South profile of small pit Feature 40 (a) and north profile of large posthole Feature 41 (b).

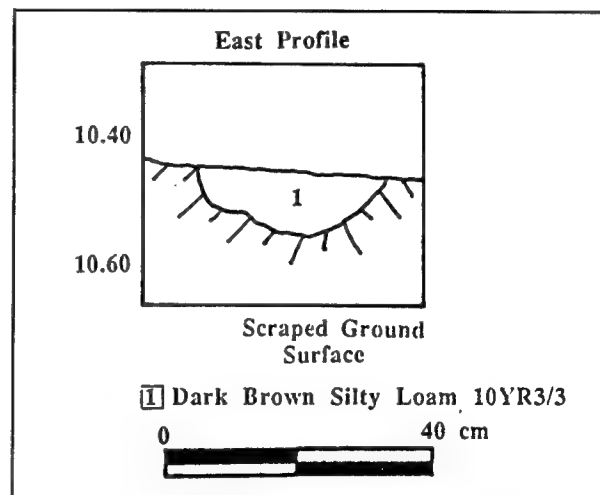


Figure 6-36. East profile of large posthole Feature 49.

Charcoal Filled Pits/Postholes

These six features consist of features characterized by what appeared to be a high degree of organic or charcoal staining in their fill and were the size of post molds. They ranged (Table 6-13) from 0.02-0.07 m² (0.06-0.2 ft²) in area and in diameter from 16-33 cm (6.3-13 in). All six features clustered in the center of the excavation block beneath Feature 3, but no definite relationships could be identified (Figure 6-37). They were all visible at the base of Level 3, and appeared to predate the hearth as none appeared to be intrusive through either the mottled ash or fired silty loam deposits of Feature 3. Thus, all of these features were either small shallow pits containing charcoal-stained fill, or postholes from higher up which had been partially obliterated by the soil firing in Feature 3.

TABLE 6-12

Contents Of Small Pits/Large Postholes

Feature	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Ceramic	Baked Clay ¹	Bone ¹	Shell ¹	Charcoal ^{1,2}	Burned Rock
4 WS	—	—	—	7	—	—	1	1	1	1	13
F	—	—	—	3	—	—	11	1	3	3	2
13 F	—	—	—	5	—	—	17	7	10	4	—
38 F ³	—	—	—	—	—	—	—	—	—	—	—
40 F	—	—	—	1	—	—	12	17	8	—	7
41 F ⁴	—	—	—	1	—	—	2	5	1	1	1
49 F	—	—	—	5	—	—	4	3	1	2	2
Total	—	—	—	22	—	—	47	34	24	11	25

¹ Baked clay, bone, shell, and charcoal are enumerated in grams; all other categories are enumerated in counts.

² WS = charcoal, F=charcoal + macrobotanical.

³ See entries for Feature 8, Table 6-11.

⁴ Apparently processed with Feature 42 non-macrobotanical remains separated only.

TABLE 6-13

Metrical Data For Charcoal Filled Pits/Postholes

Feature	Area (m ²)	Depth Below Datum (m)	Depth Below Surface (cm)	Volume Water Screened (liters)	Volume Floated (liters)
15	0.03	-10.52	3.8	0	2
18	0.06	-10.54	3.9	0	4
31	0.03	-10.525	36.5	0	3
33	0.07	-10.535	38.5	0	3
34	0.02	-10.535	40.5	0	3
37	0.07	-10.57	45	0	10

As a class, the pits and postholes consisted of yellowish brown to brown to dark brown silty loam fill, variously stained with charcoal (Table 6-14). In some cases, this staining was sufficient to give them a very dark gray to black coloration. Also as a class, they are characterized by low quantities of both artifactual and nonartifactual inclusions (Table 6-15). Most startling of

all, the flotation samples contained very little charcoal of any kind.

Feature 15 had a shallow concave bottom with sloping walls, since it was apparently larger on Level 3 than it was at a deeper level (Figure 6-38a). The charcoal stained material was about 13 cm (5.1 in) thick, beginning at -10.39 and ending at -10.52 m. At its top, it is estimated as being ca. 22.5 cm (8.85 in) in diameter, making it only slightly larger than it was at its base, but still within the size range for a posthole. It was found to contain no artifacts and very small quantities of baked clay, shell, and charcoal. Feature 18 had a shallow concave bottom with a thickness of less than 8 cm (3.1 in) for the charcoal stained deposit (Figure 6-38b). Like Feature 15, it had small quantities of baked clay, shell, and charcoal with only one flake. Feature 31 appeared to have an irregular flat bottom with slightly divergent sides (Figure 6-39a). The charcoal staining had to be at least 4.5 cm (1.8 in) thick based on the recorded section of Feature 31. It contained small quantities of baked clay and charcoal, plus three flakes and one biface. Feature 33 had a shallow concave bottom with divergent sides and was at least 5 cm (2 in) thick, based on the section (Figure 6-39b). It contained no artifacts and minimal quantities of baked clay, shell, and bone. Feature 34 appeared to have an irregular concave bottom with diverging sides (Figure 6-40a). It was heavily charcoal stained with a thickness of

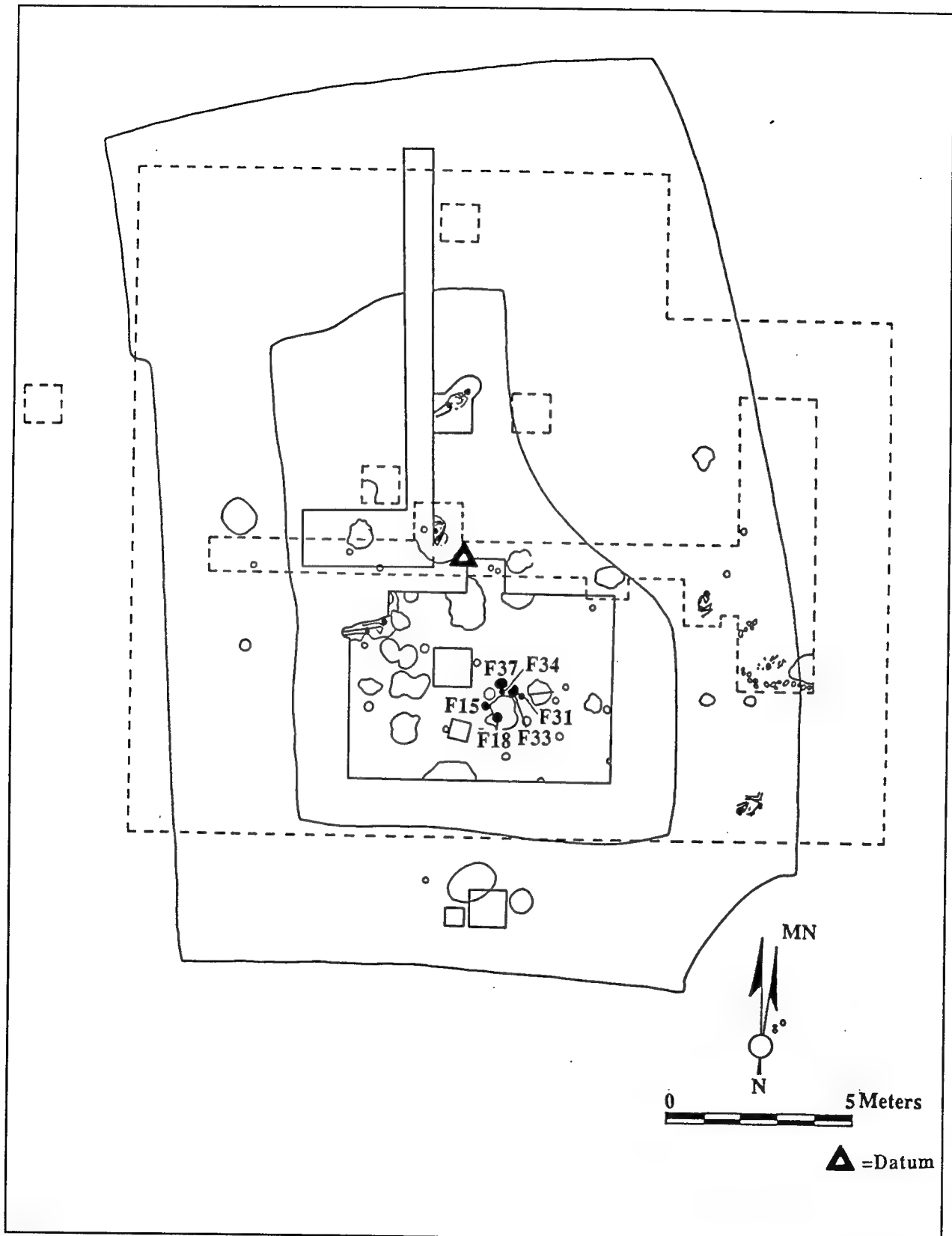


Figure 6-37. Location of charcoal filled postholes excavated at 41DT80: the Thomas site, in 1987.

TABLE 6-14

Descriptive Data For Charcoal Filled Pits/Postholes

Feature	Unit	North-South Diameter (m)	East-West Diameter (m)	Description of Fill
15	122 & 129	0.19	0.19	Very dark brown silty loam (10YR2/2) stained with charcoal (10YR2/1)
18	129 & 130	0.26	0.27	Yellowish brown silty loam (10YR5/6) stained with charcoal and ash
31	123	0.20	0.21	Brown silty loam (10YR5/3) stained with charcoal
33	123	0.32	0.28	Dark brown silty loam (10YR3/3) stained with charcoal
34	122 & 123	0.16	0.18	Very dark gray silty loam (10YR3/1) stained with charcoal
37	122 & 123	0.25	0.33	Black silty loam (10YR2/1) stained with charcoal

TABLE 6-15

Contents Of Charcoal Filled Pits/Postholes¹

Feature	Biface	Lithic Debitage	Baked Clay ²	Bone ²	Shell ²	Charcoal ^{2,3}	Burned Rock ²
15	—	—	4	—	1	1	—
18	—	1	3	—	1	2	1
31	1	3	1	—	—	1	—
33	—	—	1	1	1	—	—
34	—	2	1	—	1	1	—
37	—	—	11	1	1	1	2

¹ Flotation does not include #20 or #12 screens, or heavy (#6) screens <2.5 mm for anything except flakes and FCR.

² Baked clay, bone, shell, charcoal, and burned rock are enumerated in grams; all other categories are enumerated in counts.

³ Enumeration is total weight in grams.

⁴ Includes charcoal and macrobotanical remains.

other (Figure 6-40b). The charcoal staining in Feature 47 was very heavy and was about 17 cm (6.7 in) thick. It was larger than the other features in this class and produced the largest volume of floated fill. This seems to be reflected in a greater quantity of baked clay and several fragments of fire-cracked rock, but the quantities of bone, shell, and charcoal are still minimal.

As a group, these features appear to be relatively small (0.02-0.07 m² [0.06-0.2 ft²]), shallow (4.5-17 cm [1.8-6.7 in] thick) deposits of charcoal stained silty loam. They are either the charcoal stained bases of postholes (which cannot be traced very high) or small, shallow pits in which something was burned. They all are characterized by small amounts of baked clay and shell; most have some charcoal; three have a few lithics; two have a small bit of bone; and one has a few fire-cracked rocks. They may have the appearance of being postholes, but only atypical ones. Unfortunately, they also appear to be atypical fire pits, having very small amounts of wood charcoal and charred macrobotanical remains. Taking all this into account, the functions of these curious features are equivocal. None yielded sufficient recoverable charcoal to date.

Postholes

about 13 cm (5.1 in) for the staining. Like most of the other features, it contained small quantities of baked clay, shell, and charcoal with only a few artifacts. The final feature in this class, Feature 37, had a concave bottom with what appeared to be a vertical wall on one side and a sloping flared wall apparently becoming vertical on the

Eighteen features (Tables 6-16 and 6-17) were small enough to be considered postholes, ranging in area between 0.01-0.04 m² (0.03-0.13 ft²) and in diameter from 12-23 cm (4.7-9.1 in). All but one of these features were located within the block excavation area (Figure 6-41).

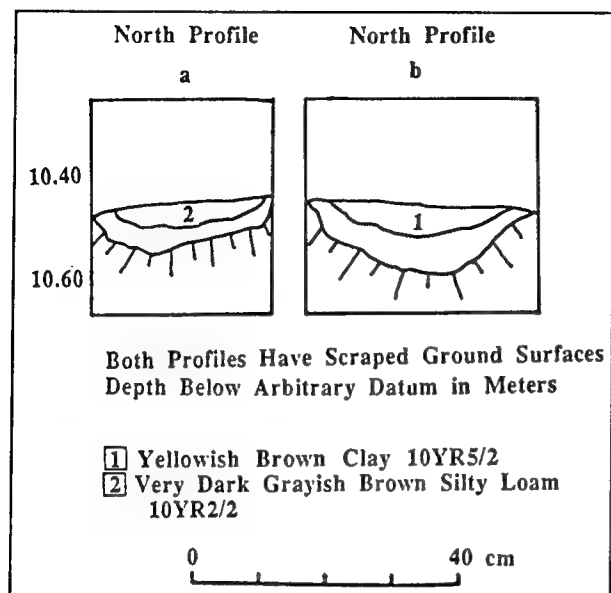


Figure 6-38. North profiles of Feature 15 (a) and Feature 18 (b).

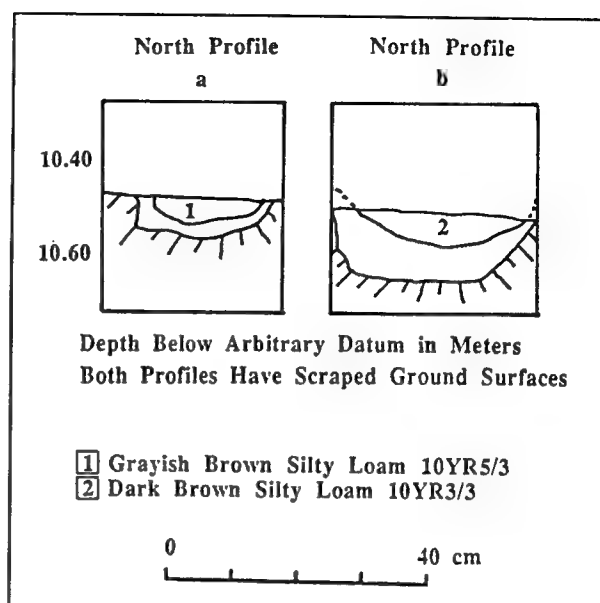


Figure 6-39. North profiles of Feature 31 (a) and Feature 33 (b).

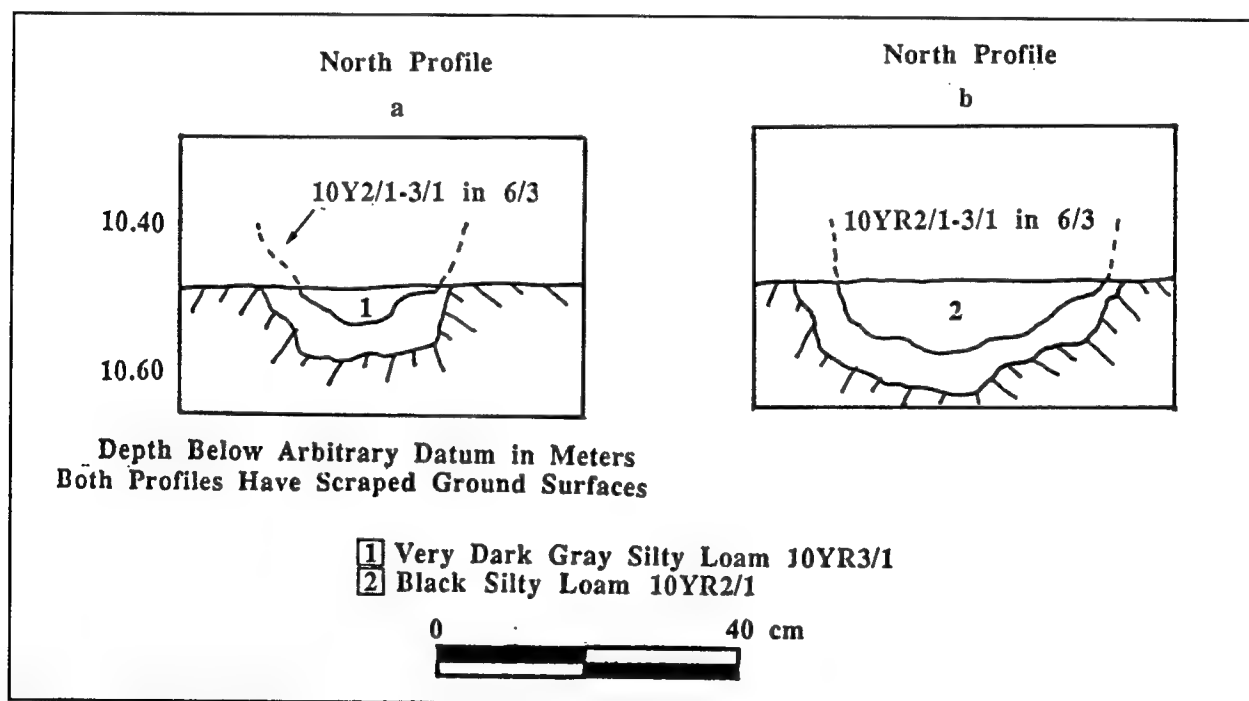


Figure 6-40. North profiles of Feature 34 (a) and Feature 37 (b).

This is probably due more to the shallowness of the postholes at 41DT80 and the difficulty of identifying them in the machine scraped area, than it is a reflection of the actual distribution of such features at the site. These features varied in depth below ground surface between

36-48 cm (14.2-18.9 in), with the average depth being 41.8 cm (16.5 in). In color, these features ranged from being black (10YR2/1) to yellowish brown (10YR5/4), with the most common colors varying from very dark grayish brown (10YR3/2) to dark brown (10YR3/3-4/3).

TABLE 6-16
Metrical Data For Postholes

Feature	Area (m ²)	Depth Below Datum (m)	Depth Below Surface (cm)	Volume Water Screened (liters)	Volume Floated (liters)
5	0.03	-10.55	43	0	2
7	0.01	-10.73	43	0	2?
8	0.04	-10.67	36.5	0	3 ¹
10	0.02	-10.55	37	0	2
14	0.03	-10.50	41	0	8
16	0.03	-10.61	46	0	5
17	0.02	-10.60	43	0	5
19	0.02	-10.59	41	0	5
22	0.03	-10.61	36	0	5
24	0.03	-10.57	37	0	5
26	0.03	-10.545	41.5	0	3
28	0.02	-10.59	47	0	3
29	0.03	-10.65	45	0	2
42	0.03	-10.44	40	0	2 ²
44	0.01	-10.74	44	0	7
50	0.04	-10.56	39	0	2
54	0.03	-10.46	48	0	0
55	0.04	-10.47	45	0	0

¹ Mixed² Mixed?

In regard to soil consistency, they ranged from silty loam to sandy silty loam to sandy clay loam, with quite a few mottled with flecks of charcoal.

The majority of these features had concave bottoms and vertical sides, where the sides were preserved (Figures 6-42 to 6-47). Two postholes had relatively flat bottoms (Features 8 and 50), two had pointed bottoms (Features 28 and 44), and one had an irregular bottom (Feature 14).

None of these features yielded enough fill to provide both a flotation sample and a water screened sample, with the result that all the fill from all the postholes was floated (Table 6-18). In regard to artifacts, most of the postholes contained small amounts of lithic debris and a few fire-cracked rocks. The only feature in this class with more than six artifacts was Feature 7, which was the subject of a recordation mix-up and may not actually be the correct context. Disregarding this feature, the remaining postholes

are very similar in regard to artifactual content.

A similar low density pattern is shown in regard to the nonartifactual content of these postholes. Most contain low frequencies of baked clay, bone, shell, and charcoal, with a few (such as Feature 28) having very little at all. Feature 7 shows a moderate, but not unusual amount of baked clay and shell. Feature 44 also shows an unusually large amount of baked clay, but nothing else.

Feature 54 and Feature 55 were located in Unit 103 during testing of the Thomas site and only later were they designated as features. As a result, neither flotation nor water screen samples were taken, although they were profiled. Fire-cracked rock was noted in Feature 54 and one sherd in Feature 55.

In summary, all the features classified as postholes are of a small size with a depth below surface ranging from 6-42 cm (2.4-16.5 in). With few exceptions, they show low frequencies of both artifactual and nonartifactual material in their fill. These exceptions include an inordinately large number of fragments of fire-cracked rock in Feature 7 (of questionable context) and a large amount of baked clay in Feature 44. Feature 7 admittedly remains an enigma, but the large amount of baked clay in Feature 44 may partially be the result of the larger flotation sample taken. In this regard, it is worth noting that Feature 14, the feature with the highest artifact count, excluding Feature 7, also had a large flotation sample.

Burials

Features 45, 51, 52, and 53 were all identified as human burials, and together with the two excavated previously (Hyatt et al. 1974:78, 86; Westbury 1975:68-59), brought the total number of burials from the Thomas site to six, with a minimum of seven individuals (Figure 6-48). A detailed osteological analysis of the remains recovered in 1987 is presented in Appendix C. One burial was exposed within the limits of the excavation block, two more were located by the backhoe trench, and the fourth was found during the machine scraping of the area surrounding the block. With the exception of Burial 5, they were all between 40-50 cm (15.7-19.7 in) below the surface (Table 6-19). Burial 5 was in a very deep pit exposed in the backhoe trench and may have been excavated from a level below modern ground surface. The profile of the backhoe trench clearly shows Feature 53 being partially intruded into by a later pit (see Figure 6-6). The identifiable portion of Feature 53 shows a pit about 53 cm (20.9 in) deep and it is possible that this was the original depth of the Burial 5 pit.

TABLE 6-17
Descriptive Data For Postholes

Feature	Unit	North-South Diameter (m)	East-West Diameter (m)	Description of Fill
5	111	0.20	0.17	Yellowish brown sandy loam (10YR5/4) heavily mottled with bits of charcoal
7	139	0.13	? ¹	Very dark grayish brown sandy clay loam (10YR3/2)
8	125 & 132	0.23	0.22	Very dark gray silty loam (10YR3/1) with light charcoal
10	124	0.17	0.17	Dark brown silty loam (10YR3/3) mottled with flecks of charcoal
14	115	0.23	0.19	Very dark grayish brown sandy loam (10YR3/2) mottled with charcoal flecks
16	129	0.20	0.19	Dark brown silty loam (10YR4/3)
17	130	0.16	0.16	Dark brown silty loam (10YR4/3)
19	130	0.16	0.16	Dark brown silty loam (10YR3/3)
22	131	0.18	0.20	Dark brown silty loam (10YR3/3)
24	124	0.18	0.20	Very dark gray sandy loam (10YR3/1)
26	128	0.17	0.20	Dark brown silty loam (10YR4/3) mottled with charcoal flecks
28	112	0.16	0.19	Dark brown silty loam (10YR4/3) mottled with charcoal flecks
29	138	? ²	0.21	Dark grayish brown silty loam (10YR4/2)
42	105&113	0.19	0.20	Dark brown silty loam (10YR3/3) mottled with charcoal flecks and yellowish brown clay
44	—	0.12	0.15	Black sandy loam (10YR2/1)
50	137	0.21	0.22	Dark brown silty loam (10YR3/3)
54	103	0.20	0.20 ³	Very dark grayish brown silty loam (10YR3/2)
55	103	0.22	0.22 ³	Dark brown silty loam (10YR3/3)

¹ Feature 7 extended into the east wall of Unit 139 making it impossible to measure its east-west dimensions.

² Feature 29 extended into the south wall of Unit 138 making it impossible to measure its north-south dimension.

³ Estimate only.

Burial 3 (Feature 51) was placed on the top of the rise and was exposed by the backhoe. It consisted of the extended remains of what appeared to have been an adolescent male (see Appendix C). The burial pit outlines were unclear but its dimensions are estimated from the skeletal remains (Table 6-20). The remains were laid on the back with arms at either side. The body was oriented about 55° east of north with the head to the northeast and the face to the northwest. Moderately large areas were disturbed by animal burrowing activities and a Gary point found in the chest area was probably the result of such disturbance. No unequivocally associated mortuary furniture was found with Burial 3.

Burial 4 (Feature 52) was uncovered in the machine scraped area southeast of the block excavation. The grave pit was unidentifiable but estimates were made on the basis of the human remains. The remains were oriented roughly 124° west of north, and were in a flexed position on the left side with the head to the southwest, facing north. The individual appeared to be an elderly female. No mortuary furniture was associated with the burial.

Burial 5 (Feature 53) was disturbed partially by the backhoe trench north of the block excavation. This pit was the deepest below ground surface of any of the burial features and contained the remains of two immature

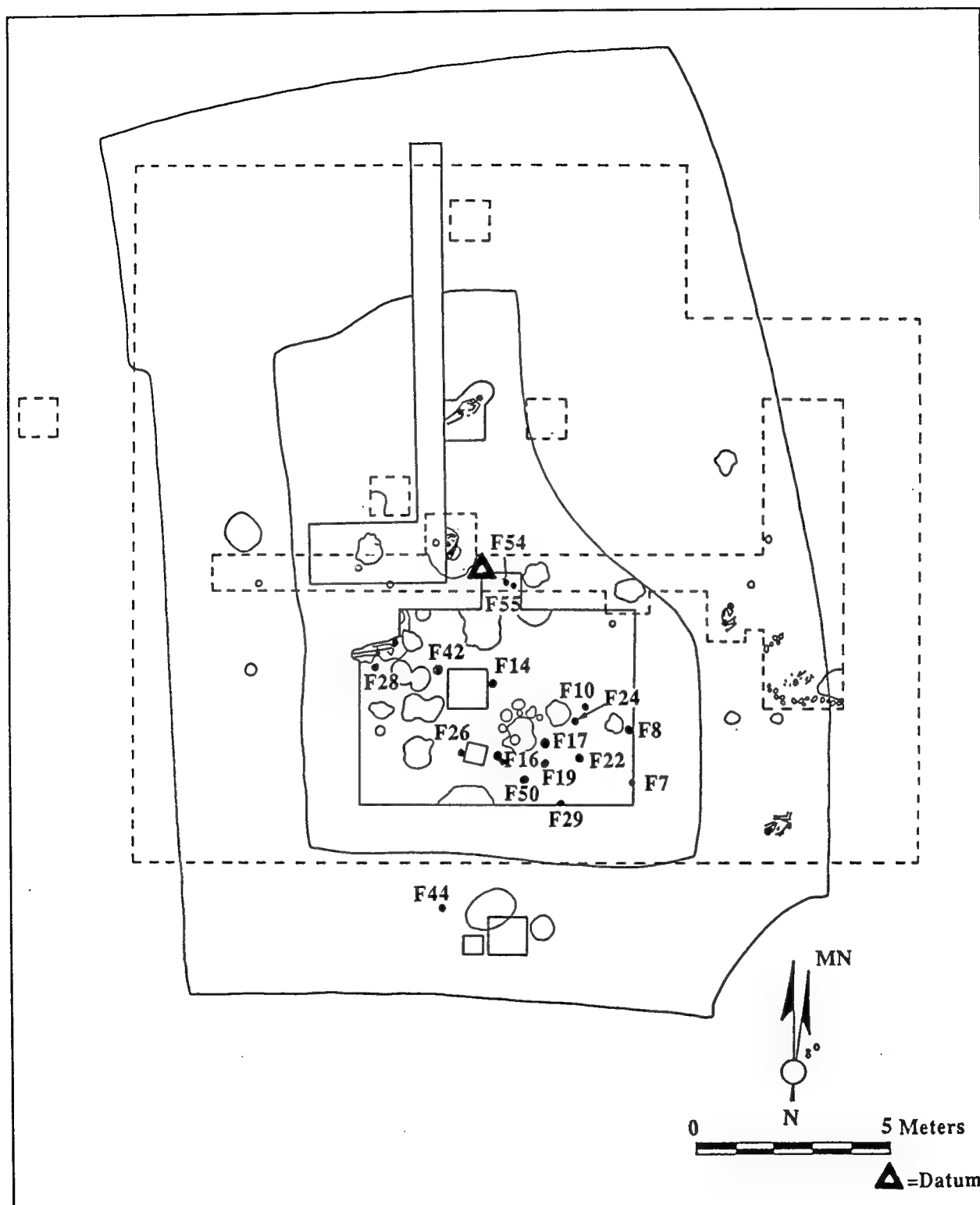


Figure 6-41. Location of postholes excavated at 41DT80: the Thomas site, in 1987.

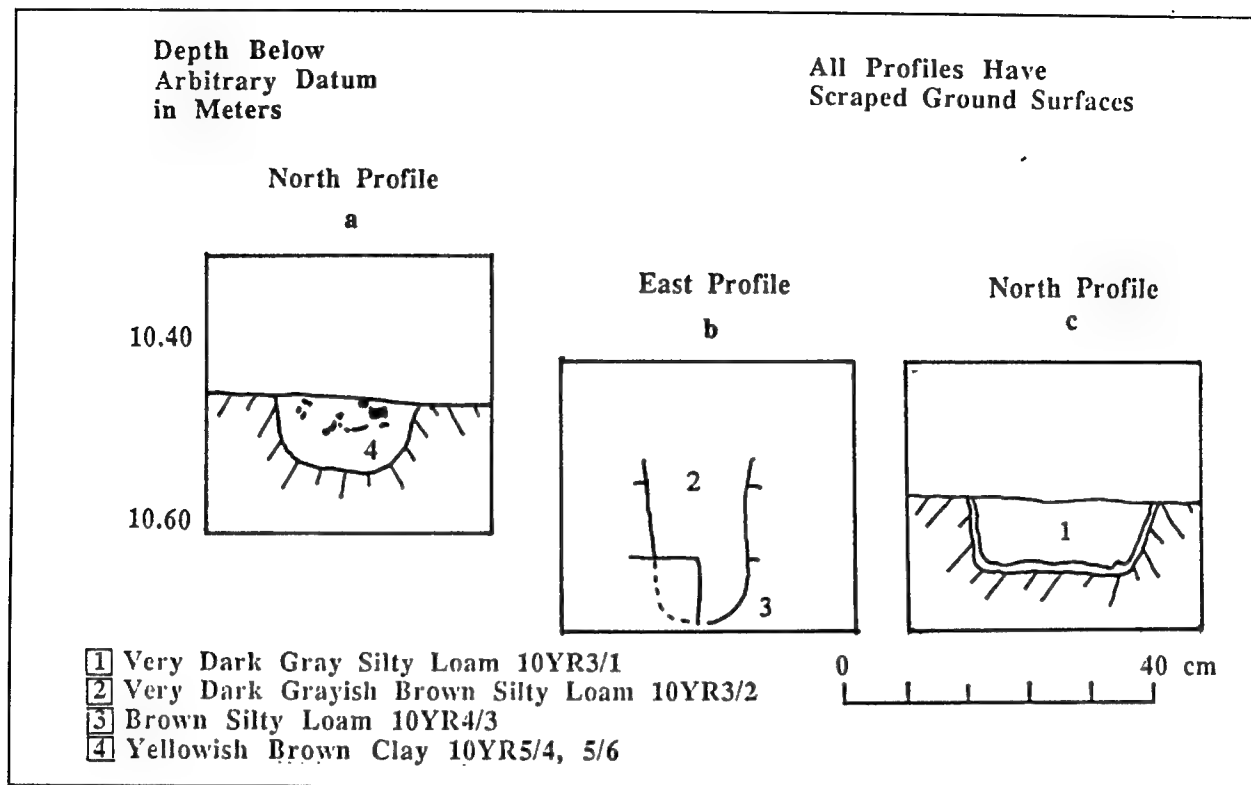


Figure 6-42. North profile of Feature 5 (a), east profile of Feature 7 (b), and north profile of Feature 8 (c).

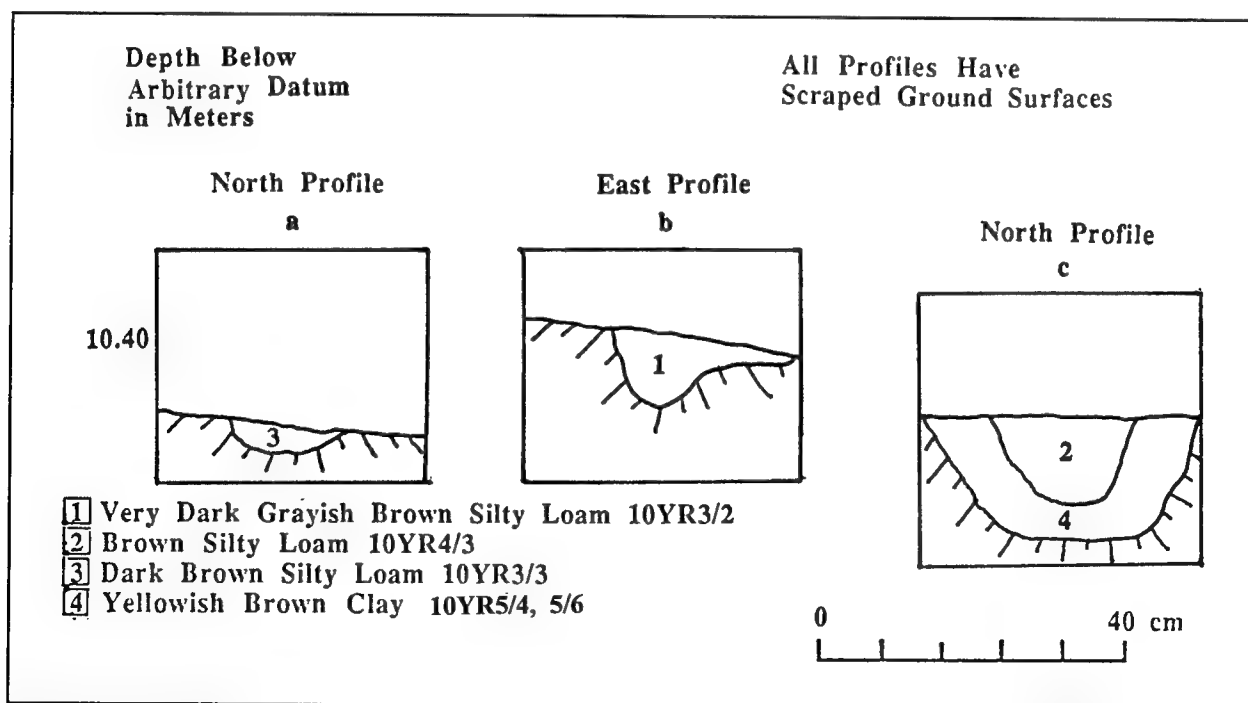


Figure 6-43. North profile of Feature 10 (a), east profile of Feature 14 (b), and north profile of Feature 16 (c).

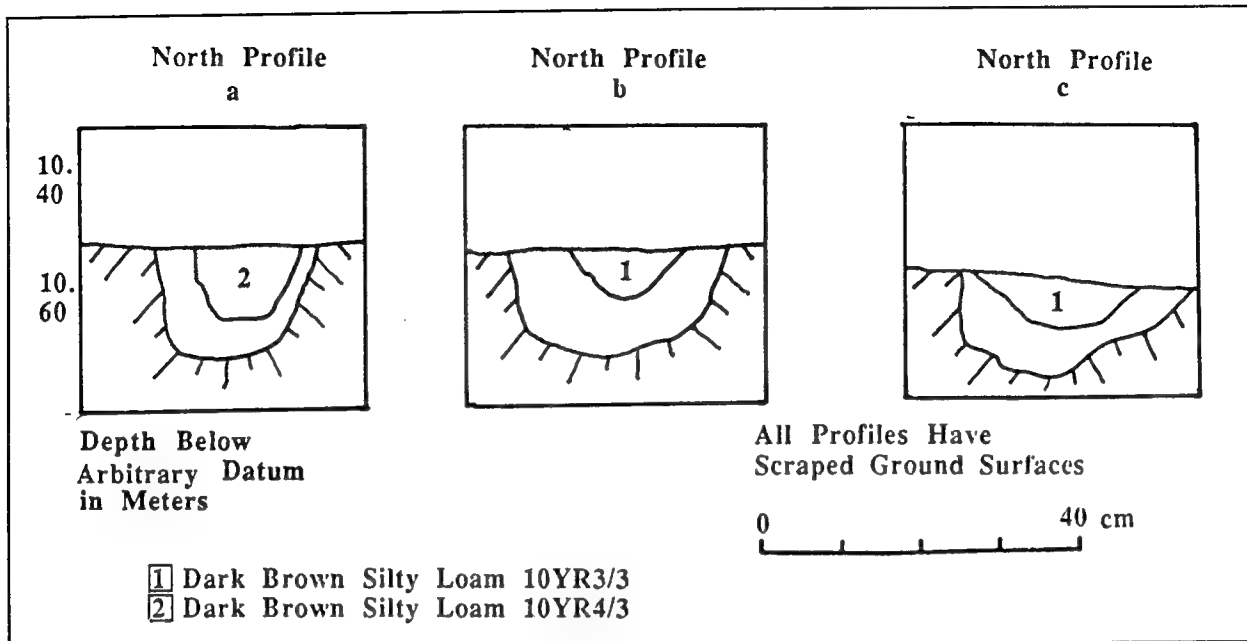


Figure 6-44. North profile of Feature 17 (a), Feature 19 (b), and Feature 22 (c).

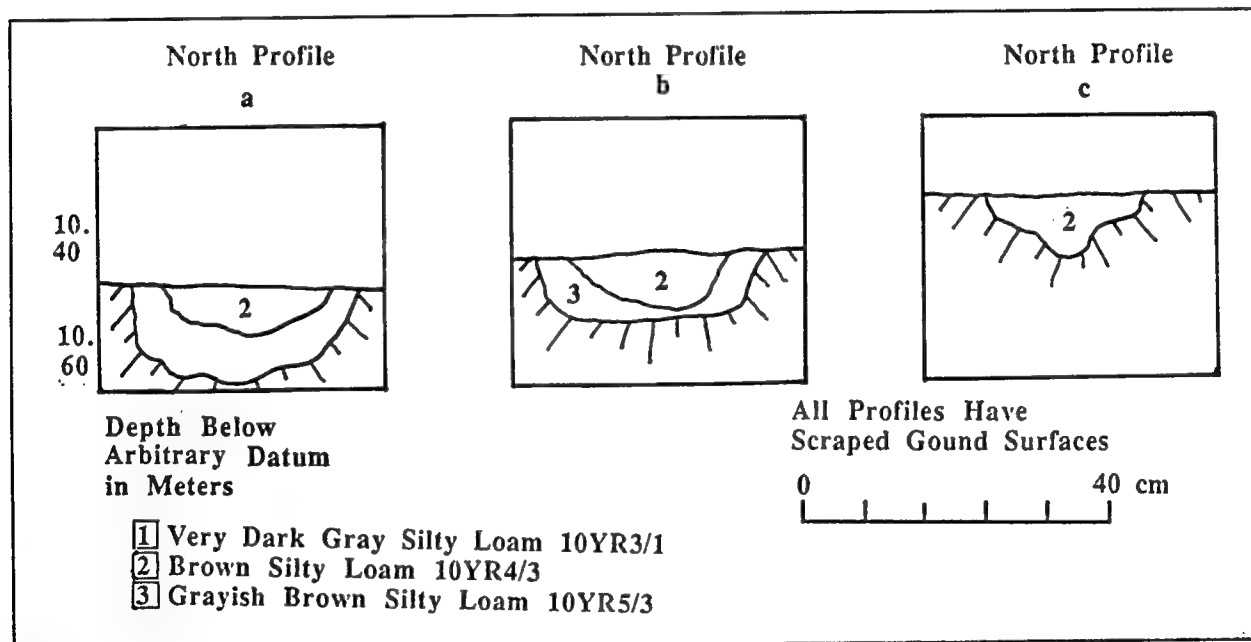


Figure 6-45. North profile of Feature 24 (a), Feature 26 (b), and Feature 28 (c).

individuals. The oldest individual, also the best preserved, seemed to be oriented about 154° east of north in a flexed position on the right side, with the head to the southeast, facing east. Almost all of the remains of the second individual were removed by the backhoe and its original position is unknown. The Burial 5 grave pit was visible in

the B horizon, but only half was present beyond the limits of the backhoe trench. As a result, length and width estimates are based on what was preserved (see Table 6-20). No mortuary furniture was recovered, but a large lens of carbonized organic material or charcoal was noted underlying the left scapula of the more complete

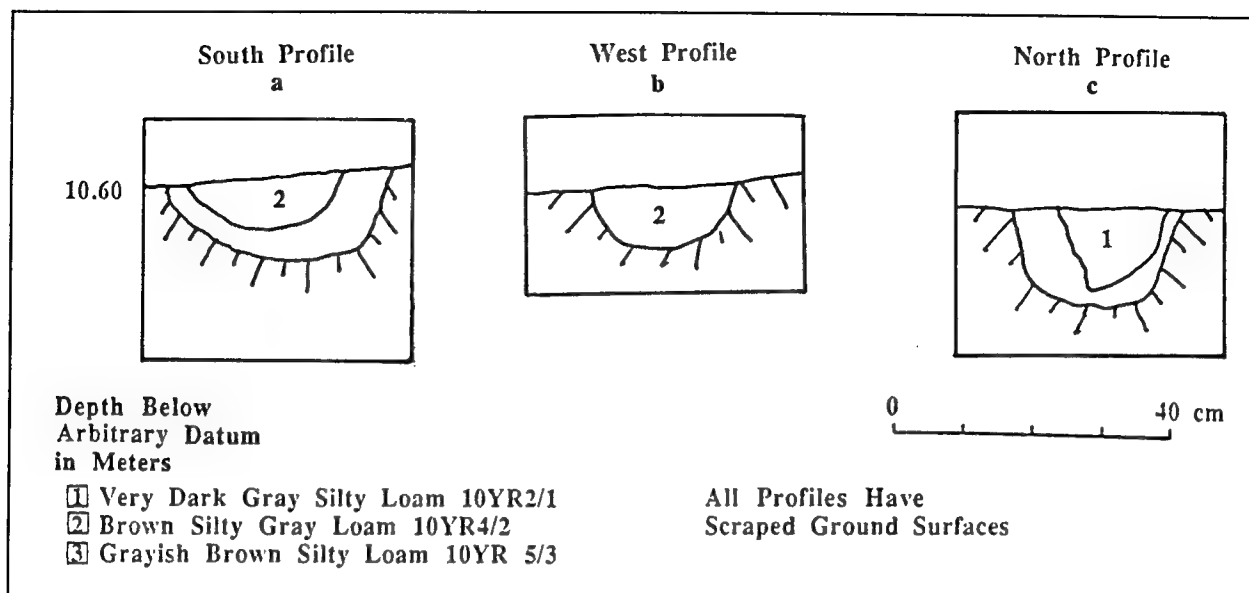


Figure 6-46. South profile of Feature 29 (a), west profile of Feature 42 (b), and north profile of Feature 44 (c).

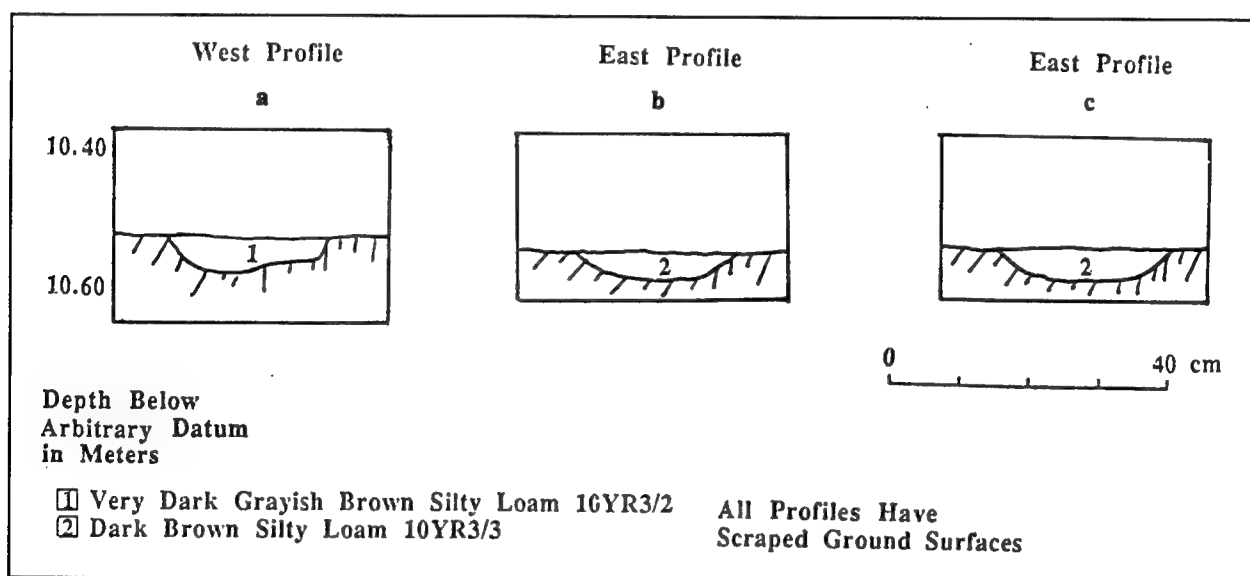


Figure 6-47. West profile of Feature 50 (a), Feature 54 (b), and Feature 55 (c).

individual, and was too closely associated to be merely fill.

Burial 6 (Feature 45) was the final burial recovered from the Thomas site during the 1987 investigations, located in the northwest corner of the block excavation. The human remains appeared to be those of an adolescent and were extended on the back with the right arm down the side and the left arm bent beneath the back. The body was oriented about 75° east of north with the head to the

northeast and the face turned slightly to the south. The grave pit was visible inside the block excavation and was intrusive into the hearth, Feature 48. It was, in turn, intruded into by the later pit, Feature 12. Burial 6 was not associated with any mortuary furniture.

Sizeable portions of the fill from each burial pit were water screened, in addition to flotation samples being taken from three of the four features. All of the pits contained reasonably large numbers of artifacts, including tools and ceramics as well as lithic debris and fire-cracked

TABLE 6-18

Contents Of Postholes¹

Feature	Projectile Point	Lithic Debitage	Baked Clay ²	Bone ²	Shell ²	Charcoal ^{2,3}	Burned Rock ²
5	—	—	1	1	1	2	—
7	—	3	4	2	6	1	11
8 ⁴	—	—	1	1	1	2	1
8	—	1	1	1	1	2	—
10	—	1	1	1	1	1	—
14	1	3	4	1	3	4	2
16	—	1	2	6	—	2	—
17	—	—	6	1	1	1	—
19	—	—	1	1	1	2	—
22	—	4	4	3	1	2	—
24	—	1	5	1	1	2	—
26	—	—	1	1	1	2	—
28	—	—	—	—	—	2	—
29	—	—	7	4	2	1	2
42	—	2	6	1	1	2	—
44	—	2	14	1	1	2	—
50	—	1	1	1	4	2	—
54 ⁵	—	—	—	—	—	—	—
55 ⁵	—	—	—	—	—	—	—

¹ Flotation does not include #20 or 12 screens, or heavy (#6) screens < 2.5 mm for anything except flakes and FCR.

² Baked clay, bone, shell, charcoal, and burned rock are enumerated in grams; all other categories are enumerated in counts.

³ Includes charcoal and macrobotanical remains.

⁴ Laboratory mixup: one belongs to Feature 8 and one probably belongs to Feature 38, but unable to distinguish the two.

⁵ Not floated.

rock, plus large amounts of all categories of nonartifactual material (Table 6-21). Since a grave pit has a known function and presumably is refilled almost immediately with the matrix removed from it, the material contained in these features can be taken as representative of the cultural fill through which the graves were excavated. In this regard, they bear strong resemblances to the contents of the large pits discussed previously, suggesting that much of the fill of these pits may be trash as well.

INTRASITE PATTERNING

Vertical Patterning

An argument has been made previously for at least a portion of the cultural deposits at the Thomas site being the result of an aggrading midden accumulation (see Appendix E). If such was the case, some degree of artifactual change should be identifiable from the lower to the upper levels of the site. It was with this possibility in mind that the vertical distribution of a number of artifact forms and types was examined.

The examination of vertical patterning at the Thomas site was confined to the units within the block excavation, primarily for purposes of comparability. The three levels from each of these squares were excavated during the same phase of the project, using the same excavation and artifact recovery techniques. In addition, the profiles of the block unit show these levels to be comparable in regard to the stratigraphy of the site. Thus, artifacts from the testing units (101-104) and from isolated units (141) were excluded.

Since the first goal was to identify the existence of any temporal change in artifact types and to clarify the periods of occupation, both temporally sensitive ceramics and projectile points were seriated by level. The vertical distribution of projectile points was tabulated, both for all units within the block excavation and for those units that did not show any major disturbance by cultural features, excluding postholes. It was assumed that postholes would have little effect on artifact frequencies so they were excluded from compilation. These relatively unmixed units made up a sample of 17 units within the larger 34 m² (111.5 ft²) area (i.e., Units 105, 110, 111, 115, 116, 117, 118, 122, 126, 128, 129, 130, 131, 137, 138, and 139).

The vertical distributions of projectile points in the complete block and in the "unmixed" squares show similar patterns (Tables 6-22 and 6-23). Within all levels of both samples, arrow points are in the majority with dart points representing a distinct minority. In both tables, there is an association between Rounded Stem, Bulbar Stem, and Contracting Stem varieties of Serrated points, and Catahoula points in Level 1; while in Level 2 there is an association between Expanding Stem and Rectangular Stem varieties of Serrated points, Scallorn, and Alba points. The data also suggest that the Untyped, Rectangular Stem arrow point is associated more with Level 2. The frequencies of points from Level 3 for the "unmixed" units is too low to be really meaningful,

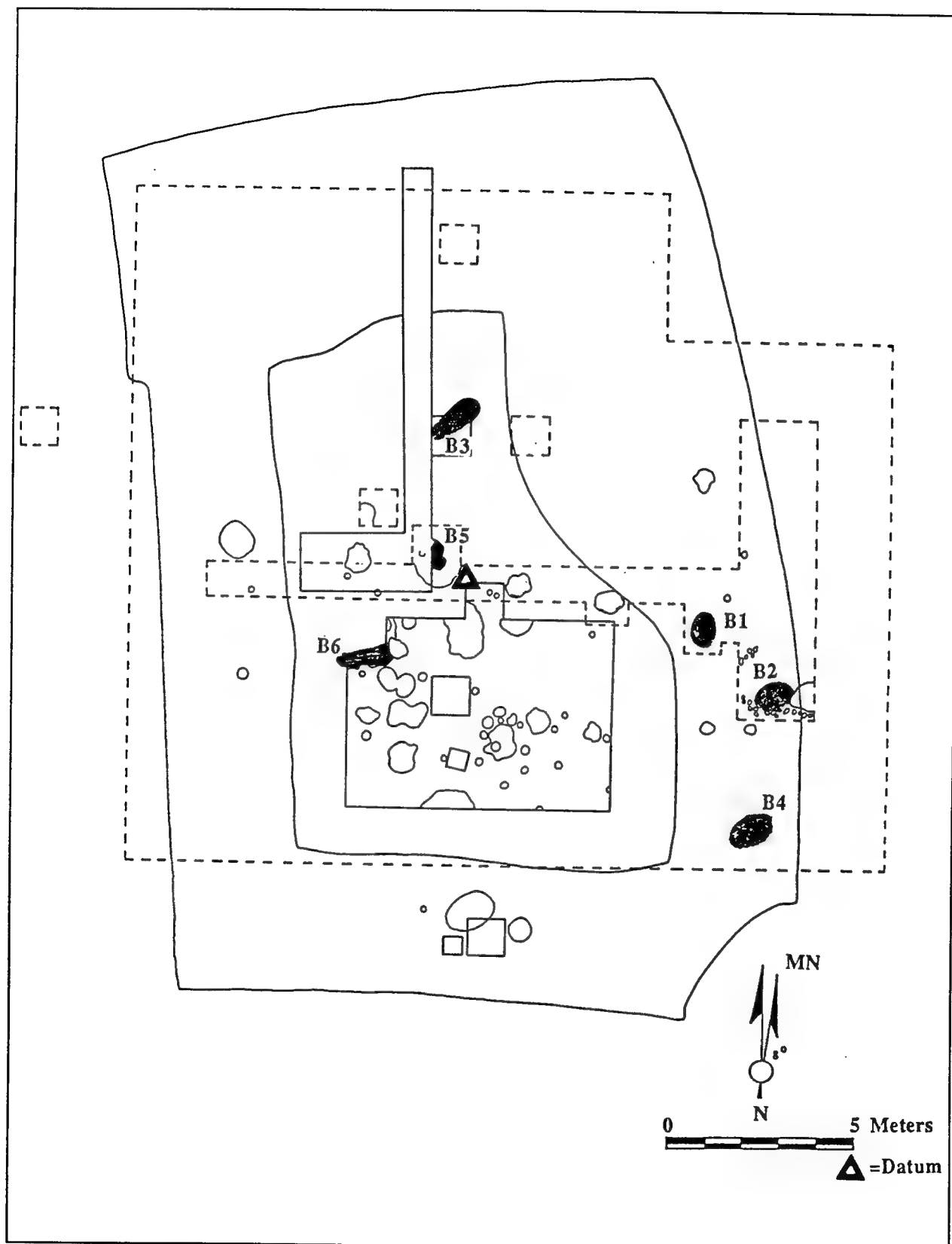


Figure 6-48. Location of burials excavated at 41DT80: the Thomas site, in 1972, 1973, and 1987.

TABLE 6-19
Metrical Data For Burial Pits

Feature, Area Burial	Area (m ²)	Depth Below Datum (m)	Depth Below Surface (cm)	Volume Water Screened (liters)	Volume Floated (liters)
45, 6	0.58	-10.50	50	72.5	17
51, 3	0.57	-10.25	50	— ¹	—
52, 4	0.39	-10.95	40	57.5	20
53, 5	0.24	-10.71	71	— ²	20

¹ Due to an oversight in the field, volumetric measurements were not recorded for the fill surrounding Burial 3.

² One wheelbarrow of fill was removed from around the Burial 5 remains; an estimated figure for the volume of this feature would be ca. 100 liters.

although there is a suggestion that Scallorn points may be associated strongly with that level (see Table 6-22). Interestingly enough, Gary dart points are associated most strongly with Level 1, although there are a few unspecified varieties in Levels 2 and 3. The Weak Shouldered variety of Gary points has a strong association with Level 1 in both tables, suggesting either a continued use of the dart as a hunting implement or the use of this particular variety of Gary point as a knife rather than a dart point.

On the basis of the vertical distribution of projectile points at the Thomas site, then, there appears to be at least two identifiable components, with potentially two others based on general point style trends in East Texas. The earlier component identifiable on internal evidence (in Level 2) seems to have high frequencies of expanding stem points (either Serrated or Scallorn), lower frequencies of rectangular stem points (Serrated, Alba, and Untyped), and the possible presence of some varieties of Gary points and bulbar stemmed arrow points. Prior to this, there may have been a period (Level 3) characterized by Scallorn points, some unspecified varieties of Gary points, and possibly untyped dart points.

The component represented by Level 1 has high frequencies of Rounded Stem, Bulbar Stem, and Contracting Stem Serrated points; Catahoula and Untyped, Contracting Stem arrow points; and Weak Shouldered and unspecified variety Gary points. This period also may be characterized by low frequencies of earlier expanding and rectangular stem arrow points, plus Friley arrow and untyped dart points. A final and

apparently ephemeral late component at the Thomas site is indicated by the presence of a Talco point and a Fresno point in Level 1. Both forms occur relatively late elsewhere in East Texas.

The ceramic data from the block excavation at the Thomas site were handled in the same way as the projectile point data, with frequencies and percentages being tabulated from each level for the block as a whole (Table 6-24), and for the "unmixed" units within the block (Table 6-25). Similar trends were revealed by both sets of data, but can be most clearly seen by a seriation of the ceramic types from the three levels of the "unmixed" units (Figure 6-49). Discounting the occurrences of single sherds in the lower levels of the units as not being reliable indicators of that type's presence, a clear pattern of vertical change can be identified. Within Level 3, over 50% of the ceramic material consists of Grog Tempered Plain or Burnished types, with the remainder of the total being single sherds of eight separate types (each of which came from a unit with a posthole). Based on this, the only ceramic types that can be firmly associated with the component represented by Level 3 at the Thomas site are the Plain and Burnished types of Grog Tempered Ware.

The subsequent Level 2 shows continued high frequencies of Grog Tempered Plain and Burnished, plus the addition of moderate amounts of Small Grog Tempered Plain and Burnished, with two sherds of Coarse Grog Tempered Finger Impressed. In addition, there are three types represented by single sherds. Of these, the Grit Tempered Burnished sherd, the Coarse Grog Tempered Plain sherd, and one of the two Coarse Grog Tempered Finger Impressed sherds come from units with visible postholes, and their presence in Level 2 may be the result of disturbance. Their presence in Level 2, as well as that of the sherds from units with no identifiable disturbance, also could be the result of the cross-cutting of natural levels by artificial excavation levels. The ceramic types that do seem to be firmly associated with this level are Grog Tempered Plain and Burnished, and Small Grog Tempered Plain and Burnished. The latter ware may be a refinement of Grog Tempered Ware associated with technological changes involving a finer paste and the use of more finely ground grog temper. These four types make up almost 87% of the identified ceramic material from Level 2.

Level 1 at the Thomas site is distinguished by the presence of the vast majority of decorated sherds (ca. 81% were from "unmixed" units, and ca. 75 % were from the entire block), the bulk of the Grit Tempered Ware (ca. 86% for the "unmixed" units and 81% from the block units), most of the Coarse Grog Tempered Ware (80% for both the "unmixed" units and the total block), much of the Shell Tempered Ware (ca. 83% are from the

TABLE 6-20
Descriptive Data For Burial Pits

Feature	Burial	Unit	Orientation	Length (m)	Width (m)	Description of Fill
45	6	106 112 113	E75°N	1.45	0.56	Grayish brown silty loam (10YR5/2) mottled with small bits of charcoal and some large patches of ash
51	3	141	E55°N	1.60 ¹	0.55 ²	Grayish brown to very dark grayish brown silty loam (10YR3/2-5/2)
52	4	—	W120°N	0.90	0.60 ³	Dark grayish brown silty loam (10YR4/2)
53	5	—	E154°N	0.65	0.50 ⁴	Dark brown silty loam (10YR4/3)

¹ Burial 3 was partially exposed in the backhoe trench and had no identifiable pit outline. This figure is an estimate based on the preserved skeleton.

² Estimate based on width of skeletal remains.

³ Both of these measurements are estimates based on the length and width of the flexed skeletal remains of Burial 4.

⁴ Like Burial 3, Burial 5 was exposed in the backhoe trench. The width of the burial pit is based on an estimate of .25 for about one-half of the width.

TABLE 6-21
Contents Of Burial Features

Feature ¹	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Ceramic	Baked Clay ²	Bone ²	Shell ²	Charcoal ^{2,3}	Burned Rock
45 B-6											
WS ³	—	—	1	9	1	2	284	74	70	14 ⁴	34
F	—	—	—	9	—	—	66	11	24	12	10
51 B-3											
WS	1	2	2	25	3	12	120	99	56	2	65
52 B-4											
WS	—	1	1	2	—	2	50	73	51	—	34
F	—	—	—	5	—	—	36	84	28	13	5
53 B-5											
WS	—	2	4	20	2	4	28	22	20	—	42
F	—	—	—	12	—	—	3	31	4	3	1
Total	1	5	8	82	6	20	587	394	253	44	191

¹ B=Burial.

² Baked clay, bone, shell, and charcoal are enumerated in grams; all other categories are enumerated in counts.

³ WS=charcoal, F=charcoal + macrobotanical.

⁴ This figure may be due to field sample being weighed with soil matrix.

TABLE 6-22

Projectile Points Within Block Excavation
By Level

Type	Level 1		Level 2		Level 3	
	#	%	#	%	#	%
<i>Dart Points</i>						
Gary Weak Shoulder	6	7.8	—	—	—	—
Gary unspecified	5	6.5	1	3.4	1	4.0
Untyped Rectangular Stem	2	2.6	—	—	1	4.0
Untyped Large Blade	1	1.3	—	—	—	—
Untyped Small Blade	1	1.3	—	—	1	4.0
<i>Arrow Points</i>						
Serrated Rounded Stem	13	16.9	3	10.3	5	20.0
Serrated Bulbar Stem	9	11.7	2	6.9	4	16.0
Serrated Expanding Stem	1	1.3	5	17.2	—	—
Serrated Rectangular Stem	3	3.9	2	6.9	1	4.0
Serrated Contracting Stem	6	7.8	—	—	2	8.0
Catahoula	7	9.1	1	3.4	1	4.0
Scallorn	1	1.3	2	6.9	3	12.0
Alba	1	1.3	1	3.4	—	—
Friley	1	1.3	—	—	1	4.0
Talco	1	1.3	—	—	—	—
Fresno	1	1.3	—	—	—	—
Untyped Rectangular Stem	1	1.3	4	12.8	—	—
Untyped Contracting Stem	4	5.2	1	3.4	1	4.0
Fragmentary Serrated	8	10.4	6	20.7	2	8.0
Fragmentary Nonserrated	5	6.5	1	3.4	2	8.0
Total	77	—	29	—	25	—

"unmixed" units and 82% for the block units), and one of only two sherds of Bone Tempered Ware.

In contrast, only about half of the Small Grog Tempered Ware comes from Level 1 (ca. 57% for the "unmixed" units, and 64% for the total block), while less than half of the Grog Tempered Ware sherds come from

TABLE 6-23

Projectile Points Within "Unmixed" Units Of
Block Excavation By Level

Type	Level 1		Level 2		Level 3	
	#	%	#	%	#	%
<i>Dart Points</i>						
Yarbrough	—	—	—	—	—	—
Gary Weak Shoulder	3	7.9	—	—	—	—
Gary unspecified	3	7.9	1	5.0	1	12.5
Untyped Rectangular Stem	—	—	—	—	—	—
Fragments	2	5.3	—	—	—	—
Untyped Small Blade	—	—	—	—	1	12.5
<i>Arrow Points</i>						
Serrated Rounded Stem	4	10.5	—	—	1	12.5
Serrated Bulbar Stem	5	13.2	2	10.0	1	12.5
Serrated Expanding Stem	1	2.6	5	25.0	—	—
Serrated Rectangular Stem	—	—	1	5.0	—	—
Serrated Contracting Stem	5	13.2	—	—	—	—
Catahoula	3	7.9	—	—	1	12.5
Scallorn	1	2.6	2	10.0	—	—
Alba	—	—	1	5.0	—	—
Friley	1	2.6	—	—	1	12.5
Talco	1	2.6	—	—	—	—
Untyped Rectangular Stem	1	2.6	2	10.0	—	—
Untyped Contracting Stem	1	2.6	—	—	1	12.5
Fragmentary Serrated	5	13.2	5	25.0	1	12.5
Fragmentary Nonserrated	2	5.3	1	5.0	—	—
Total	38	—	20	—	8	—

that level (ca. 46% for the "unmixed" units, and 42% for the total block).

The seriation of ceramic material from the "unmixed" units of the block shows that the addition of new types in Level 1 was accompanied by only small decreases in the proportional representations of Small Grog Tempered Plain and Burnished, and Grog Tempered Plain, but by a radical decrease in the percentage of Grog Tempered

TABLE 6-24

Ceramic Types Within Block Excavation
By Level

Type	Level 1		Level 2		Level 3	
	#	%	#	%	#	%
<i>Grit Tempered Ware</i>						
Plain	20	12.7	—	—	2	6.1
Burnished	9	5.7	1	1.4	1	3.0
Engraved Zoned						
Punctate	1	0.6	—	—	—	—
Appliqué Fillet	1	0.6	2	2.8	—	—
Engraved	3	1.9	1	1.4	1	3.0
<i>Small Grog Tempered Ware</i>						
Plain	13	8.3	5	6.9	1	3.0
Burnished	4	2.5	3	4.2	—	—
Lip-Incised	1	0.6	—	—	—	—
Zoned Incised	3	1.9	—	—	1	3.0
Horizontal Incised	1	0.6	1	1.4	2	6.1
Cream Slipped	1	0.6	—	—	—	—
<i>Grog Tempered Ware</i>						
Plain	36	22.9	25	34.7	9	27.3
Burnished	15	9.6	27	37.5	11	33.3
Red-on-Natural						
Painted	1	0.6	1	1.4	—	—
Incised	1	0.6	—	—	—	—
<i>Coarse Grog Tempered</i>						
Plain	6	3.8	1	1.4	3	9.1
Finger Impressed	26	16.6	3	4.2	1	3.0
<i>Bone Tempered Ware</i>						
Red Slipped	1	0.6	—	—	—	—
<i>Shell Tempered Ware</i>						
Plain	14	8.9	2	2.8	1	3.0
Total	157	—	72	—	33	—

Burnished sherds present. Thus, while the use of the three former types apparently was not seriously altered, the addition of the newer types occurred largely at the expense of Grog Tempered Burnished vessels. The reason for this is presently unclear.

Due to the occurrence of several examples of projectile point types that are dated to the Late Caddo period in East Texas (Suhm et al. 1954; Thurmond 1985), it is likely that some of the ceramic material in Level 1 at

TABLE 6-25

Ceramic Types Within "Unmixed" Units
Of Block Excavation By Level

Type	Level 1		Level 2		Level 3	
	#	%	#	%	#	%
<i>Grit Tempered Ware</i>						
Plain	13	14.1	—	—	1	5.6
Burnished	3	3.3	1	2.6	1	5.6
Engraved	2	2.2	—	—	—	—
Applique Fillet	1	1.1	—	—	—	—
<i>Small Grog Tempered Ware</i>						
Plain	8	8.7	4	10.5	1	5.6
Burnished	2	2.2	2	5.3	—	—
Zoned Incised	1	1.1	—	—	1	5.6
Horizontal Incised	1	1.1	—	—	1	5.6
<i>Grog Tempered Ware</i>						
Plain	21	22.8	12	31.6	4	22.2
Burnished	9	9.8	15	39.5	6	33.3
Incised	1	1.1	—	—	—	—
<i>Coarse Grog Tempered</i>						
Plain	5	5.4	1	2.6	1	5.6
Finger Impressed	15	16.3	2	5.3	1	5.6
<i>Shell Tempered Ware</i>						
Plain	10	10.8	1	2.6	1	5.6
Total	92	—	38	—	18	—

the Thomas site dates to that period. At the present stage of analysis, it is believed that this material consists of Shell Tempered Ware and Grit Tempered Ware ceramics, both of which were most heavily concentrated in Level 1 within the block excavation unit.

With the recognition of this pattern of change at the Thomas site from Level 3 to Level 1 in regard to projectile points and ceramics, it became useful to ask whether a similar pattern of vertical change could be identified in the other tool types at the site. Unfortunately, when the lithic tools at the Thomas site were examined level by level, no immediate trends were identifiable (Tables 6-26 and 6-27), largely because the samples for a number of tool types were inadequate. In an attempt to at least partially resolve this problem, certain tool categories were lumped together and then reexamined (Table 6-28). Bifacial tools were lumped together as "Finished Bifaces."

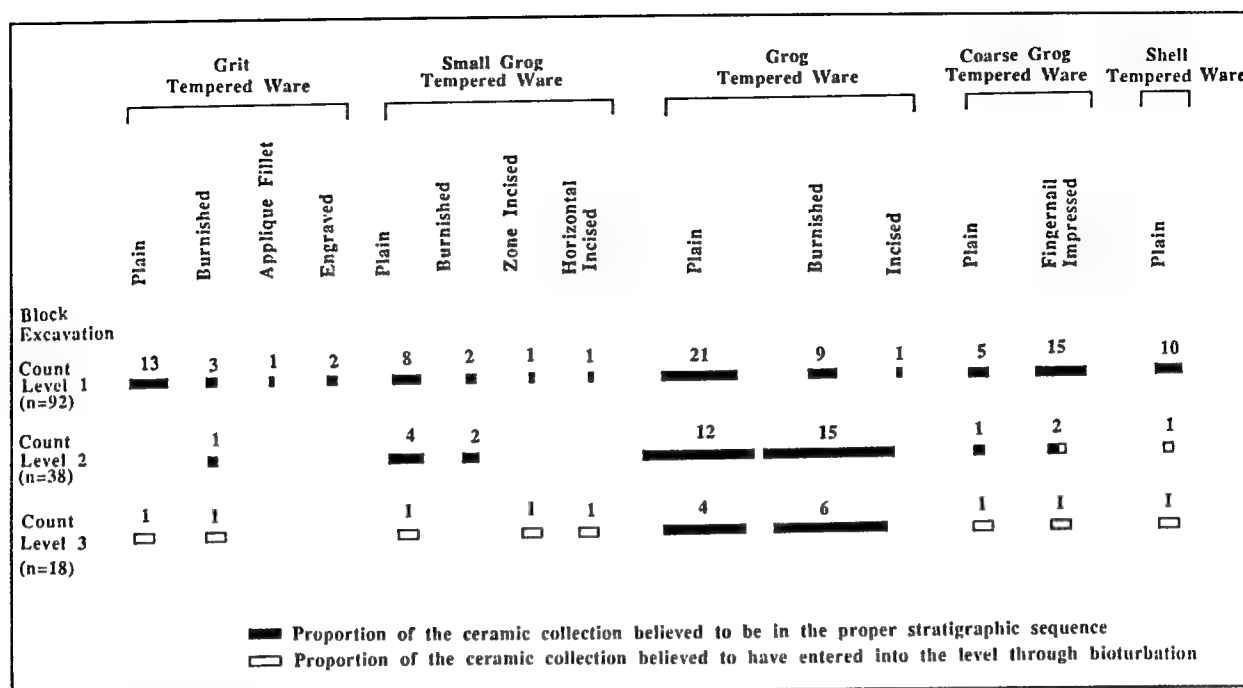


Figure 6-49. Seriation of preliminary ceramic types at 41DT80: the Thomas site (numerals represent frequencies and bars represent percentages).

The same was done with "Steeply Retouched Unifaces", "Pecked Stone Tools", and "Cores." Marginally modified graters, denticulates, burins, and burin spalls were lumped as "Marginally Modified Formal Tools." The categories of concave edge/notch and straight/convex edge piece were combined as "Marginally Modified Retouched Pieces" to distinguish them from the more formalized tools. Finally, aborted large and small bifaces were combined with biface fragments as "Aborted Bifaces."

When these new categories are examined, some trends in vertical artifact distribution at 41DT80 are recognizable. For all the units within the block excavation as a whole, the proportion of Aborted Bifaces increases from Level 3 to Level 1, while the percentage of Cores decreases. The proportions of the various tool categories do not show any clear trends for the block as a whole, but some strong trends are identifiable when only the "unmixed" units within the block are examined. These trends include increasing numbers of Steeply Retouched Unifaces and a decreasing Marginally Modified Retouched Pieces from Level 3 to Level 1. These two trends may relate to the adoption of a more formal tool kit through time. Whether this was purely a result of change in the basic tool kit, or whether it was related to changing site function within the context of a larger, unchanged tool kit is, at present, unknown. Finally, the trend toward increasing numbers of Aborted Bifaces from Level 3 to

Level 1 is present in the "unmixed" unit assemblage. However, the percentages of Cores for each level no longer show any pattern, possibly due to a smaller sample size. The increasing importance of biface production (suggested by the increasing percentages of Aborted Bifaces), coupled with a possible trend of decreasing importance of core technology, may be related to the suggested pattern of an increasingly more standardized tool kit.

In summary, the pattern of vertical artifact distributions at the Thomas site supports the model of an aggrading site formation process. Recognizable and interpretable patterns of change in regard to temporally sensitive projectile points and ceramics become clear when care is taken to exclude sources of potential vertical mixture, such as large cultural features. In addition to these trends in points and ceramics, changes in the proportions of formal and informal tools, and bifacial versus core reduction strategies also can be identified. Unfortunately, these latter patterns are far less clear and interpretable, and must remain hypothetical and subject to further testing.

Horizontal Patterning

In examining the horizontal patterning of artifacts at the Thomas site, each level was looked at individually in consideration of the evidence for aggradation and vertical

TABLE 6-26

Lithic Tools Within Block Excavation
By Level

Type	Level 1		Level 2		Level 3	
	#	%	#	%	#	%
<i>Finished Bifaces</i>						
Gouges	1	0.5	3	3.2	1	1.2
Drill/Awl	—	—	1	1.1	1	1.2
Large Bifacial Knife	1	0.5	—	—	—	—
Small Bifacial Knife	—	—	1	1.1	—	—
Bifacial Graver	1	0.5	—	—	—	—
Transverse Bifacial						
Scraper	1	0.5	—	—	—	—
Bifacial Endscraper	1	0.5	—	—	—	—
<i>Aborted Large Bifaces</i>						
Early Stage	10	5.0	3	3.2	5	6.0
Late Stage	6	3.0	4	4.3	1	1.2
<i>Aborted Small Bifaces</i>						
Early Stage	12	6.0	8	8.5	8	9.6
Late Stage	32	16.0	8	8.5	8	9.6
Biface Fragments	26	13.0	16	17.0	7	8.4
<i>Steeply Retouched Unifaces</i>						
Endscraper	2	1.0	—	—	—	—
Sidescraper	8	4.0	2	2.1	3	3.6
Scraper w/Graver Spur	3	1.5	—	—	—	—
Graver	1	0.5	1	1.1	1	1.2
Spokeshave	5	2.5	—	—	1	1.2
<i>Marginally Modified Pieces</i>						
Graver	3	1.5	2	2.1	4	4.8
Denticulate	4	2.0	1	1.1	2	2.4
Burin	1	0.5	2	2.1	—	—
Burin Spall	3	1.5	—	—	—	—
Concave Edge/Notch	7	3.5	12	12.8	3	3.6
Straight/Convex Edge	62	31.0	19	20.2	28	33.7
<i>Cores</i>						
Split/Tested Nodule	1	0.5	—	—	2	2.4
Bifacial Platform	—	—	—	—	1	1.2
Cortex Opposed						
Platform	1	0.5	—	—	—	—
Multifaceted Nodule	2	1.0	1	1.1	—	—
Prepared Platform	—	—	1	1.1	—	—
Core Fragment	5	2.5	5	5.3	6	7.2
<i>Pecked and Battered Stone</i>						
Hammerstone	—	—	2	2.1	1	1.2
Grinding Slab/Pitted						
Stone	—	—	1	1.1	—	—
Pitted Stone	—	—	1	1.1	—	—
Abrader	1	0.5	—	—	—	—
Total	200	—	94	—	83	—

TABLE 6-27

Lithic Tools Within "Unmixed" Units
Of Block Excavation By Level

Type	Level 1		Level 2		Level 3	
	#	%	#	%	#	%
<i>Finished Bifaces</i>						
Gouges	1	1.0	2	3.7	—	—
Drill/Awl	—	—	1	1.9	—	—
Large Bifacial Knife	1	1.0	—	—	—	—
Bifacial Endscraper	1	1.0	—	—	—	—
<i>Aborted Large Bifaces</i>						
Early Stage	7	6.9	2	3.7	2	6.7
Late Stage	3	2.9	4	7.4	1	3.3
<i>Aborted Small Bifaces</i>						
Early Stage	6	5.9	2	3.7	2	6.7
Late Stage	13	12.7	3	5.6	2	6.7
Biface Fragments	17	16.7	8	14.8	3	10.0
<i>Steeply Retouched Unifaces</i>						
Endscraper	1	1.0	—	—	—	—
Sidescraper	7	6.9	2	3.7	1	3.3
Scraper w/ Graver Spur	1	1.0	—	—	—	—
Graver	—	—	2	3.7	—	—
Spokeshave	1	1.0	—	—	—	—
<i>Marginally Modified Pieces</i>						
Graver	1	1.0	—	—	1	3.3
Denticulate	—	—	1	1.9	—	—
Burin	1	1.0	1	1.9	—	—
Concave Edge Notch	4	3.9	7	13.0	1	3.3
Straight/Convex Edge	31	30.4	13	24.1	14	46.7
<i>Cores</i>						
Split/Tested Nodule	—	—	—	—	1	3.3
Multifaceted Nodule	1	1.0	1	1.9	—	—
Prepared Platform	—	—	1	1.9	—	—
Core Fragment	5	4.9	1	1.9	2	6.7
<i>Pecked and Battered Stone</i>						
Hammerstone	—	—	1	1.9	—	—
Grinding Slab/Pitted						
Stone	—	—	1	1.9	—	—
Pitted Stone	—	—	1	1.9	—	—
Total	102	—	54	—	30	—

stratification of artifacts presented previously. Spatial maps (SYMAP) were generated by excavated levels for the major artifact classes such as lithic debitage, ceramics, fire-cracked rock, bone, shell, and baked clay (Figures 6-50 to 6-78), while less frequent artifact classes (tools, bifaces, cores, points, and temporally sensitive ceramic

TABLE 6-28

Percentage Of Lithic Tool Categories By Level

Type	Block Excavation			"Unmixed Units"		
	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3
Finished Bifaces	2.5	5.3	2.4	2.9	5.6	—
Steeply Retouched Unifaces	9.5	3.2	6.0	9.9	7.5	3.3
Marginally Modified Formal Tools	5.5	5.3	7.2	2.0	3.8	3.3
Marginally Modified Retouched Pieces	34.5	33.0	37.3	34.3	37.7	50.0
Pecked Stone Tools	0.5	4.3	1.2	—	5.6	—
Aborted Bifaces	43.0	41.5	35.0	45.0	36.0	33.4
Cores	4.5	7.4	10.9	5.9	3.8	10.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

types) were mapped by hand. The major focus was on the block excavation since this unit contained the most artifacts and lent itself to analysis by computer mapping. For this reason, a primary area of interest was on fine-scale examination of patterns surrounding the hearths identified by the excavations, and preliminary efforts to identify potential activity areas in each of the three levels.

On the basis of the distributions of various categories of artifacts within Level 3 at the Thomas site, several areas of concentration (see Figures 6-50 through 6-58) have been tentatively defined. Area I surrounds the hearth, Feature 48, and has been subdivided into an Area Ia and Area Ib. Area Ia is a small area due east of Feature 48, characterized by high frequencies of baked clay and shell, moderate amounts of fire-cracked rock and bone, a few ceramic sherds, and three tools (i.e., a drill and two gravers). Area Ib is to the south of Feature 48 and is characterized by a large amount of shell, a moderate amount of lithic debitage, several bifaces (e.g., five small and one large) and biface fragments, one split nodule, a moderate density of pottery, several dart and arrow points, and seven tools (i.e., a gouge, a sidescraper, a denticulate, a hammerstone, and three retouched pieces). These areas probably represent the locations of primary activities surrounding Feature 48, with Area Ia possibly being related to food preparation and cooking while Area Ib was more involved with stone working and some activity

relating to mussel shell.

Area II is defined as a relatively large area in the north central to northeast portion of the block excavation. This area has been subdivided into Area IIa, a small concentration of fire-cracked rock and shell in the central part of the block, and Area IIb, a larger area to the east. Area IIb contains several high concentrations of lithic debitage; several small bifaces, biface fragments, and core fragments; a Gary point and several arrow points; and a number of tools, including several gravers, a spokeshave, a gouge, a denticulate, a concave retouched piece, and nine straight retouched pieces.

The function of Area IIa, with the association between fire-cracked rock and mussel shell, is uncertain, but it may be another hearth area used later than Feature 48 and thus left no evidence of fire hardening at the base of Level 3. The association of lithic debitage, cores, and aborted bifaces in Area IIb points strongly to lithic reduction as at least one of the activities undertaken in that subarea.

The final two areas of artifact concentration in Level 3 (Areas III and IV) are both characterized by high frequencies of a number of artifact classes. This pattern may be the result of the areas being either the locations of a number of overlapping activities, or the locations of general dump areas or primary middens (*sensu strictu*). Area III refers to an area of artifact concentration in the

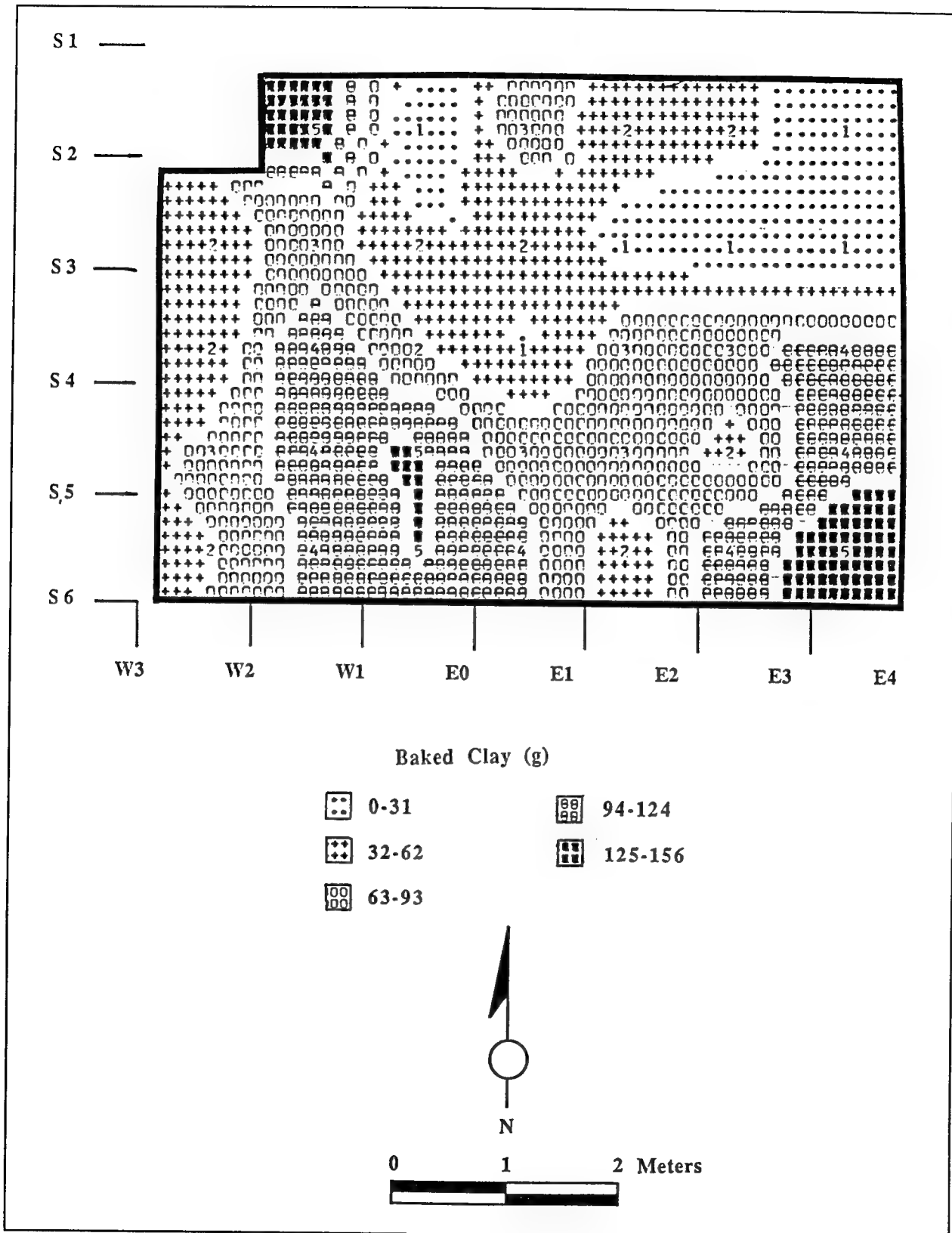


Figure 6-50. SYMAP showing the distribution of baked clay in Level 3 at 41DT80: the Thomas site.

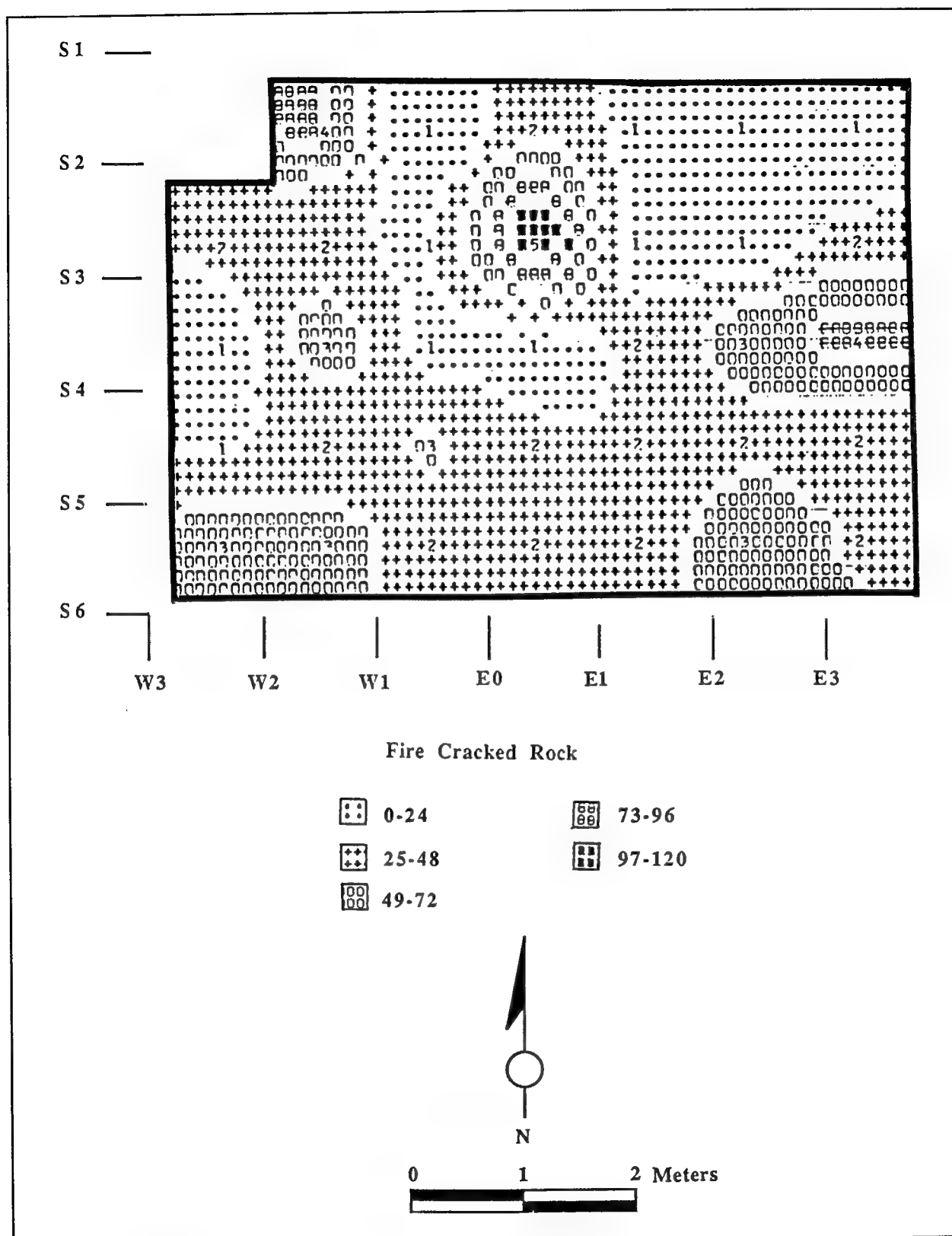


Figure 6-51. SYMAP showing the distribution of fire-cracked rock in Level 3 at 41DT80: the Thomas site.

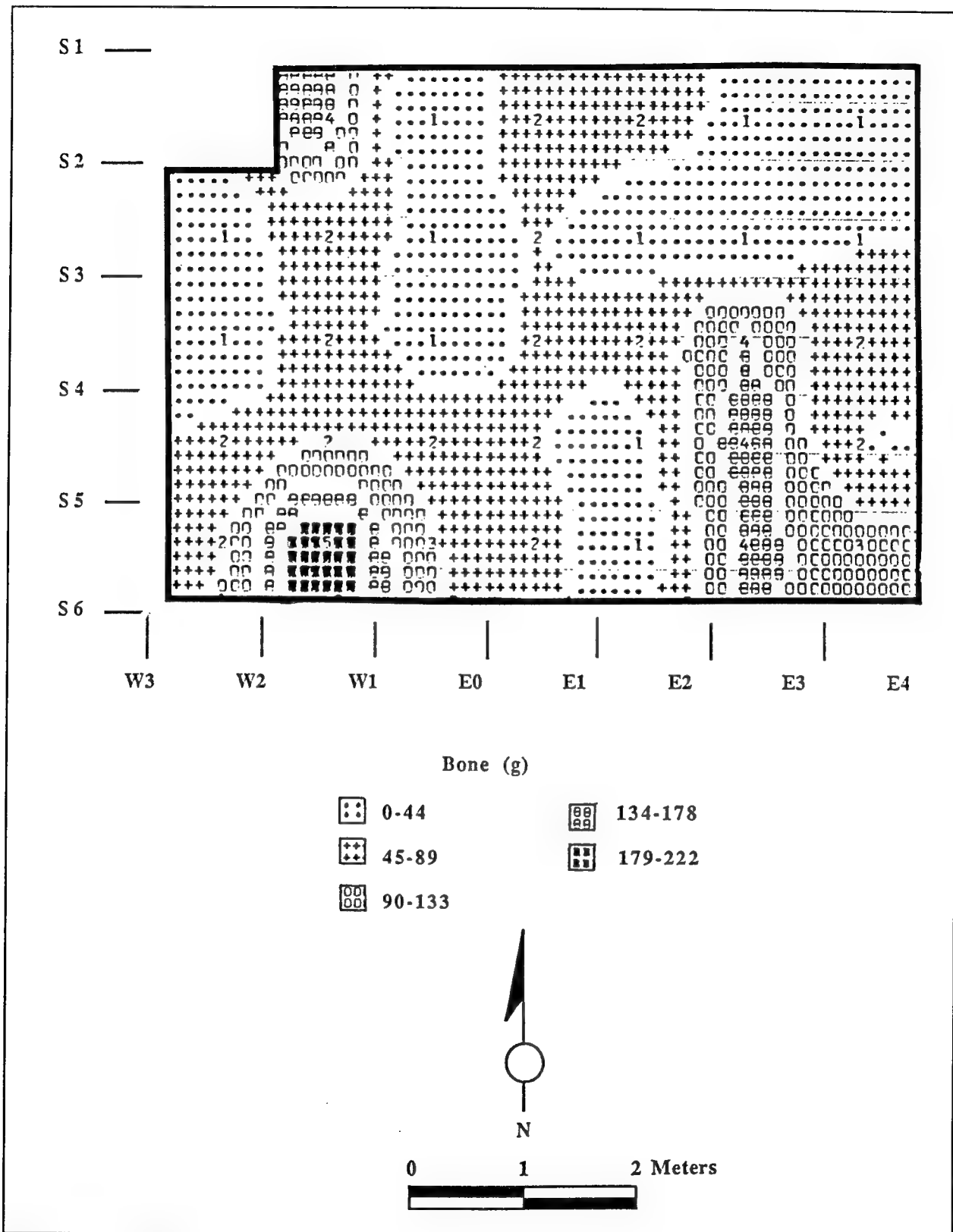


Figure 6-52. SYMAP showing the distribution of bone in Level 3 at 41DT80: the Thomas site.

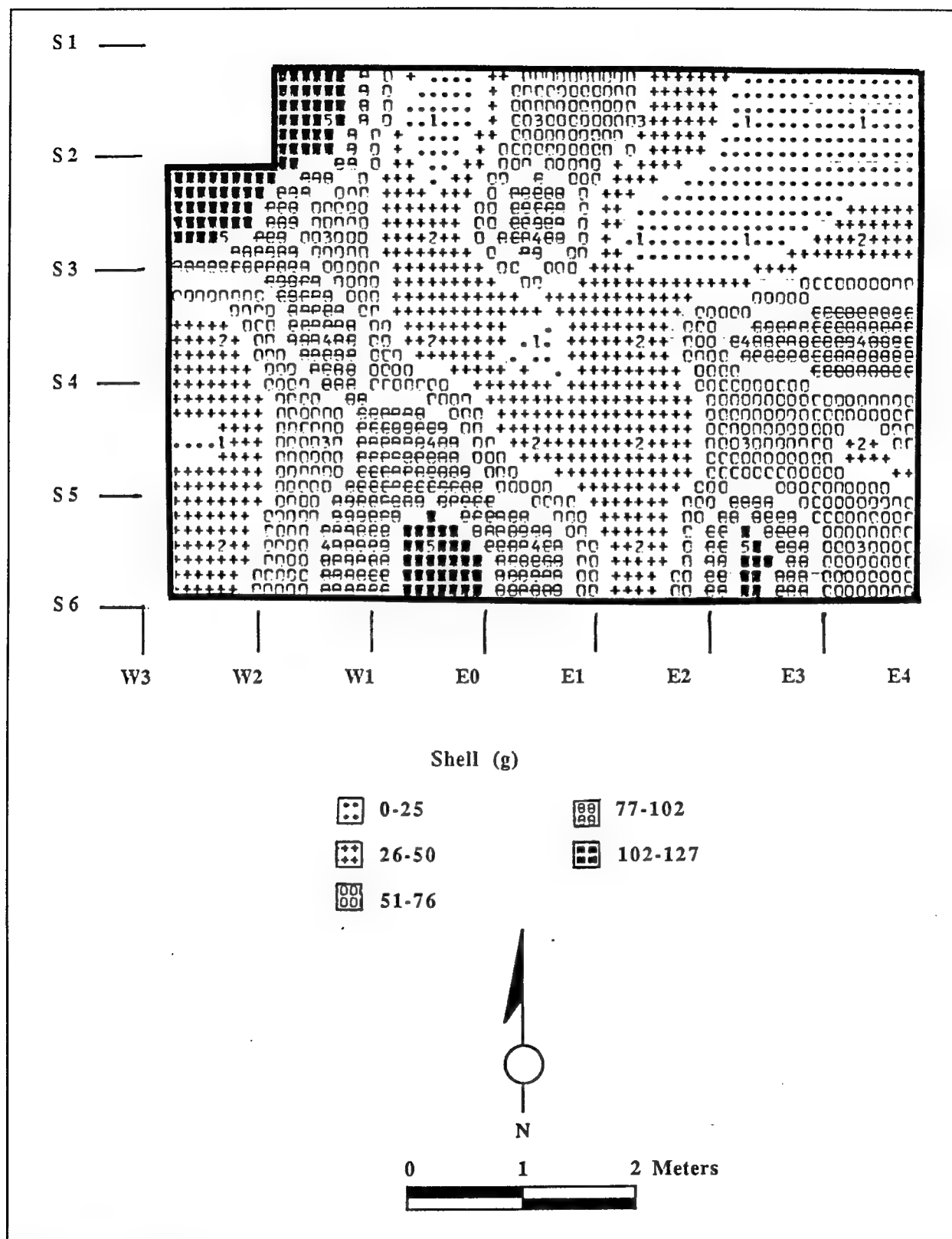


Figure 6-53. SYMAP showing the distribution of mussel shell in Level 3 at 41DT80: the Thomas site.

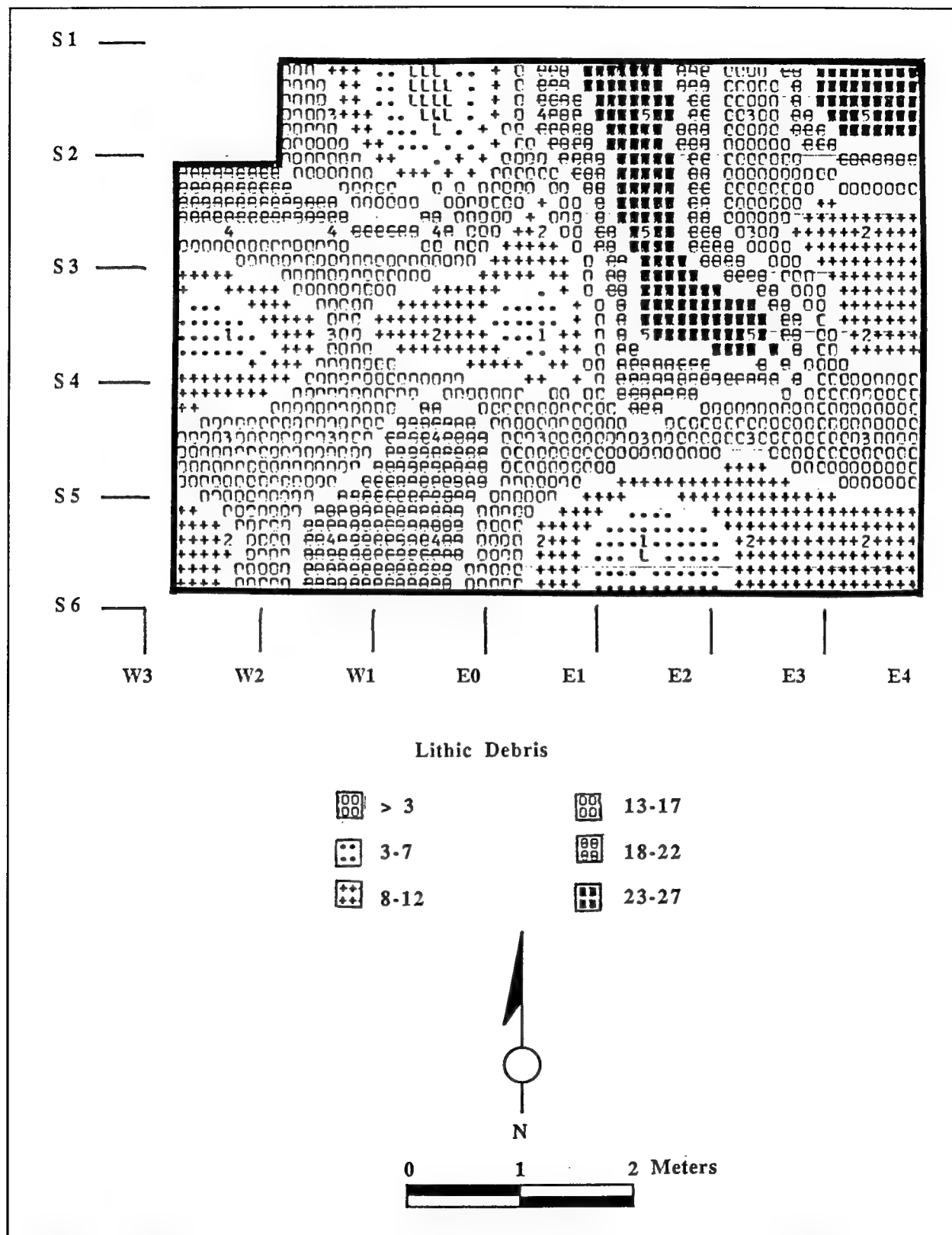


Figure 6-54. SYMAP showing the distribution of lithic debris in Level 3 at 41DT80: the Thomas site.

	SLB		SLB			CF
SEB SLB LEB N	SEB (2)		SLB	SEB	BF CF	
BF	SEB BF				SLB LEB	LEB BF CF (2)
LLB		SEB BF		LEB	SLB LEB	BF C CF (2)
N	SLB	SEB SLB	SEB		BF	

SEB= Small Early Aborted Biface
 SLB= Small Late Aborted Biface
 LEB= Large Early Aborted Biface
 LLB= Large Late Aborted Biface
 BF= Biface Fragment

C= Core
 CF= Core Fragment
 N= Nodule

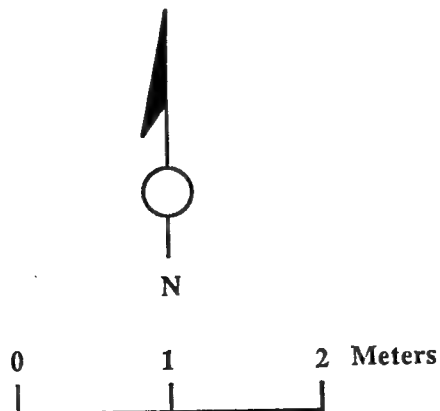


Figure 6-55. Distribution of bifaces and cores in Level 3 at 41DT80: the Thomas site.

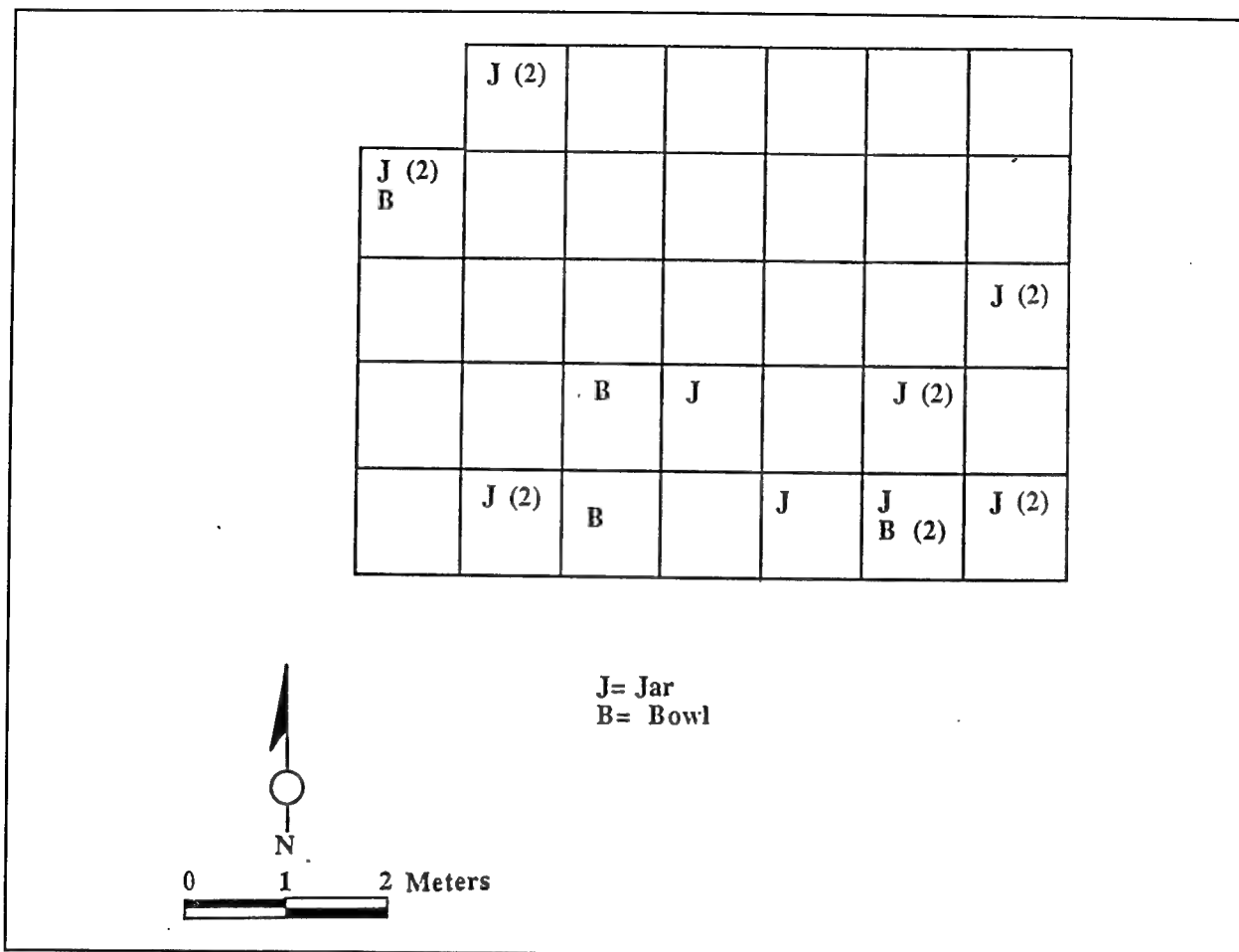


Figure 6-56. Distribution of Grog Tempered Ware sherds in Level 3 at 41DT80: the Thomas site.

southwestern portion of the block excavation. This area is characterized by high concentrations of baked clay, bone, and shell, with moderate amounts of fire-cracked rock and lithic debitage. Area III also contained a number of small bifaces, a large biface, a biface fragment, a split nodule, a few ceramics, two arrow points, and a number of straight to convex retouched pieces. Area IV, located in the southeastern portion of the block, was characterized by a similar concentration of a number of artifactual classes, with high frequencies of baked clay and shell; moderate frequencies of fire-cracked rock, bone, and lithic debitage; both large and small bifaces, cores, and biface and core fragments; a number of sherds; and a few tools, including a gouge, a denticulate, several sidescrapers, a concave retouched piece, several straight to convex retouched pieces, and two arrow points.

In Level 2, the artifact distribution patterns have been used to define five areas of concentration, with a possible hearth area located in the center of the block (Figures 6-59 to 6-69). The "hearth" is suggested by a high density of

baked clay identified in the approximate center of the unit. This concentration measures only about a meter across and represents a very large amount of baked clay recovered from Unit 123 and not associated with any identifiable later feature. Area I has been defined as an area of moderate bone density to the north of this possible "hearth." The area is characterized also by a low density of shell, a moderate amount of lithic debitage, and low frequencies of cores and bifaces, sherds, and tools. On this basis, it is suggested that Area I may represent a food preparation area associated with the "hearth." Area II is identified as a small area immediately southwest of the "hearth," characterized by a high density of lithic debitage, several bifaces and a core, several arrow points, and a few tools. On the basis of this pattern, Area II may be proposed as having functioned, at least partially, as a lithic working area.

Two areas believed to be primary activity areas located further away from the "hearth" are Area III, to the east, and Area IV, to the west. Like Area II, Area III is

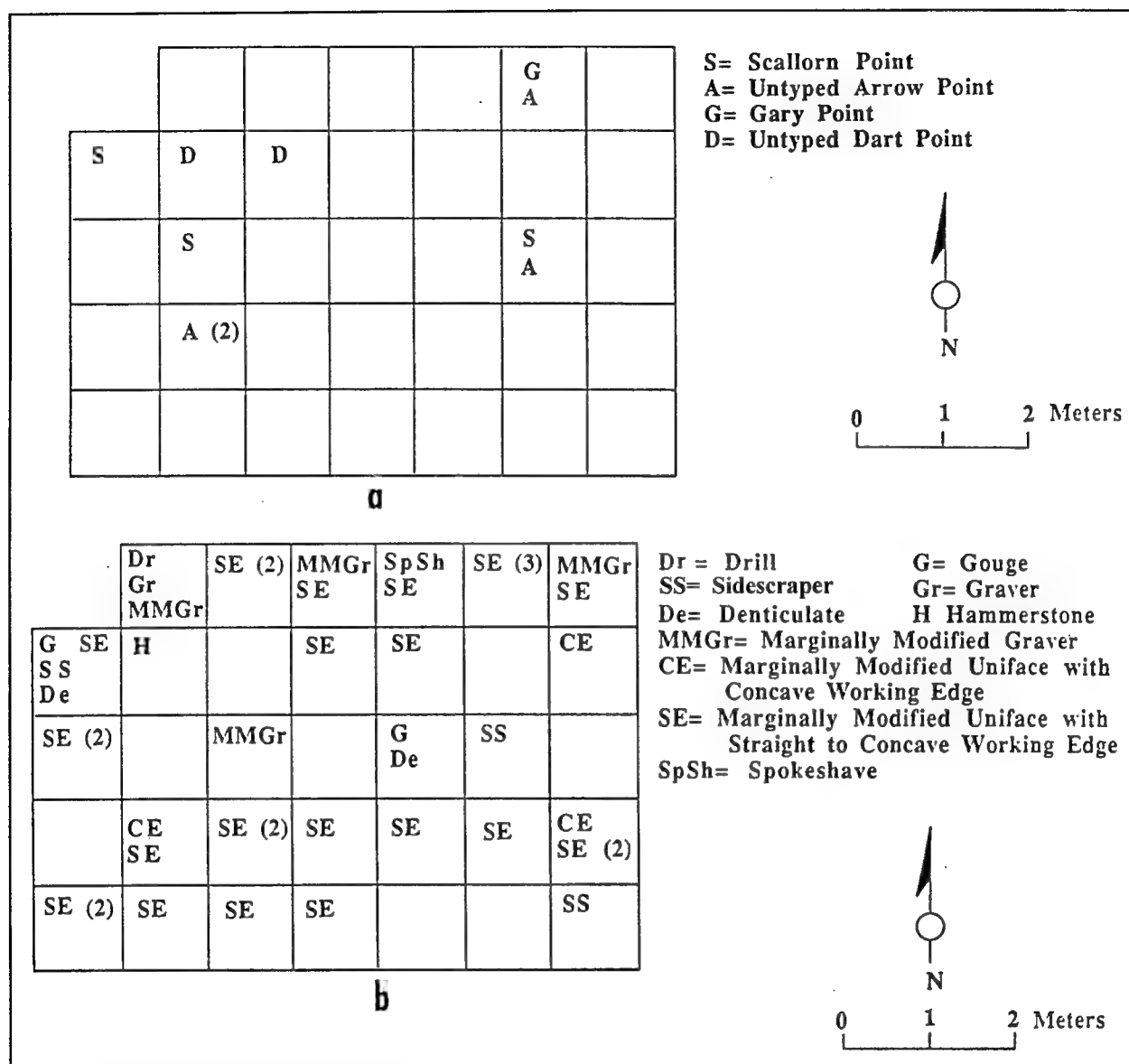


Figure 6-57. Distribution of flaked stone believed to be associated with the Level 3 occupation at 41DT80: the Thomas site; (a) projectile points and (b) lithic debris.

characterized by a moderate to high density of lithic debitage; both large and small bifaces; core and biface fragments; a few arrow points; and a number of tools, including concave and straight to convex retouched pieces, a sidescraper, a pitted stone, a gouge, and a drill/awl. The impression gained from Area III is that of a multiple activity area with at least some lithic working. Area IV, located in the northwest portion of the block, gives a somewhat similar impression. This area is characterized by a moderate density of lithic debitage; plus several small bifaces; core and biface fragments; a few sherds; several arrow points; and a moderate number

of tools, including a hammerstone, a grinding slab/pitted stone, several retouched pieces, and a burin. The association of lithic debitage, cores, and aborted bifaces with a hammerstone and a large block that could have functioned as an anvil point to lithic reduction as being at least one of the activities carried out in this area.

The remaining two areas of artifact concentration of Level 2, Area V in the southwest and Area VI in the southeast, both show high frequencies of a number of artifact classes, indicative of either a number of overlapping functions or the presence of a dump or primary midden area. Area V is characterized by moderate

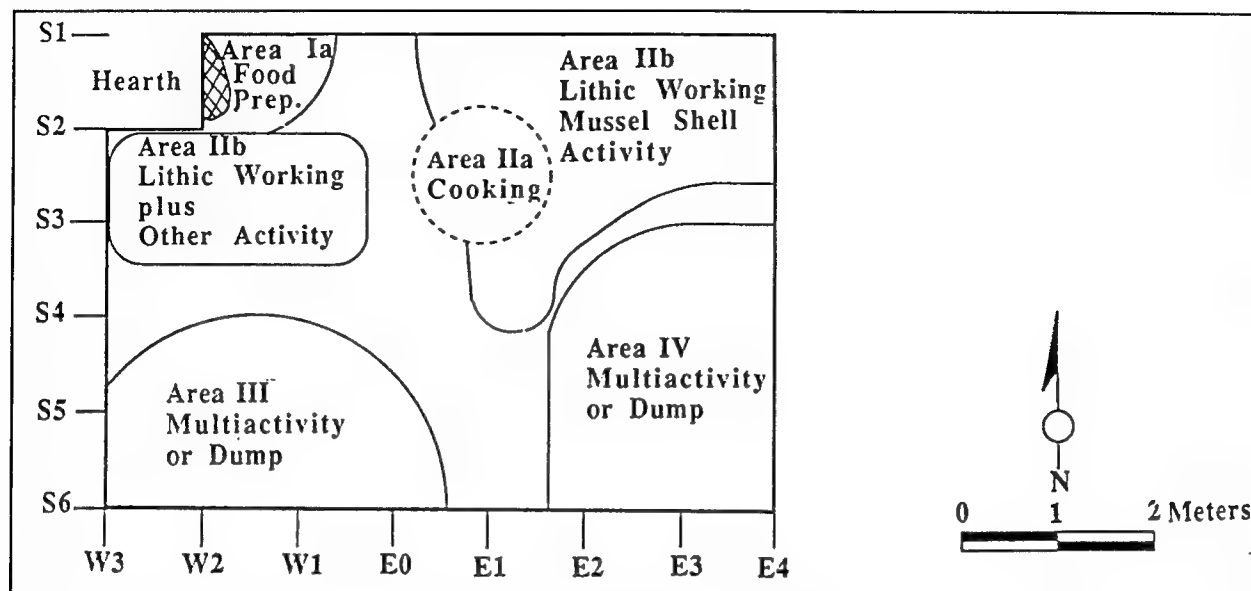


Figure 6-58. Hypothetical activity areas in Level 3 at 41DT80: the Thomas site.

densities of baked clay and fire-cracked rock, with higher densities of bone, shell, and lithic debitage. The area also contains a number of bifaces and cores; a high density of ceramics; and a number of tools, including several points, a sidescraper, several graters, and a number of retouched pieces. Area VI shows even higher densities of baked clay, fire-cracked rock, bone, and shell, with lower frequencies of lithic debitage, but a number of bifaces and cores, ceramics, and tools.

The presence of several intrusive features is shown on the SYMAPs of the artifact distributions in Level 2. Burial 6 shows up as a concentration of baked clay in the northwest corner of the block, probably the result of intrusive Feature 48. Feature 21 is believed to be identifiable as a moderate density concentration of fire-cracked rock located to the southeast of Burial 6. Feature 21 also appeared as a high density area of fire-cracked rock, baked clay, and shell on Level 3, suggesting a roasting function for the feature.

The upper level at the Thomas site contains diagnostics of both the Early and Late Caddo periods. The diagnostics (i.e., projectile points and ceramics) have been removed from the general analysis of the horizontal patterning of Level 1 and examined separately. Unfortunately, nondiagnostic material cannot be so treated, and the patterns of Level 1 discussed below are to some degree a composite of two temporal occupations of unknown intensity on the site. The earlier occupation is believed to date to the first part of the Early Caddo period, based on the classes of decorated ceramics present and several radiocarbon dates ranging from A.D. 1020 \pm 60 for Feature 3 to A.D. 1110 \pm 110 and A.D. 1120 \pm 50 for

Features 12 and 2, respectively.

The horizontal distribution of artifacts on Level 1 has been the basis for defining six possible activity areas (Figures 6-68 to 6-76). Areas I and II are located adjoining the hearth, Feature 3, on the north and south, respectively. Areas III and IV are located further away from the hearth to the east and northeast. Area V is situated north of the hearth, while Area VI is located on the western side of the block excavation. Area I is distinguished by a high density of fire-cracked rock; moderate densities of baked clay and lithic debitage; a number of both large and small bifaces and biface fragments; and a few points and tools, including several retouched pieces, an abrader, and a burin spall. On this basis, it is suggested that Area I was used for lithic working and tool manufacture, among other possible functions. Area II contains moderate to high densities of baked clay, fire-cracked rock, bone, shell, and lithic debitage. The area also includes a number of large and small bifaces; biface and core fragments; ceramics; several arrow points close to Feature 3; and a number of tools, including a bifacial knife, several types of scrapers, a denticulate, a spokeshave, a burin, and several concave and straight to convex retouched pieces. Although, the overall impression of this area gained from the above contents is that of a midden dump, its proximity to Feature 3 suggests either a multifunctional activity area or an area of Early Caddo activities overlapping with Late Caddo utilization, possibly as a midden at that time (see below).

Area III, on the eastern edge of the block, is identified as having high frequencies of baked clay, bone, and shell, with both large and small bifaces and cores, but

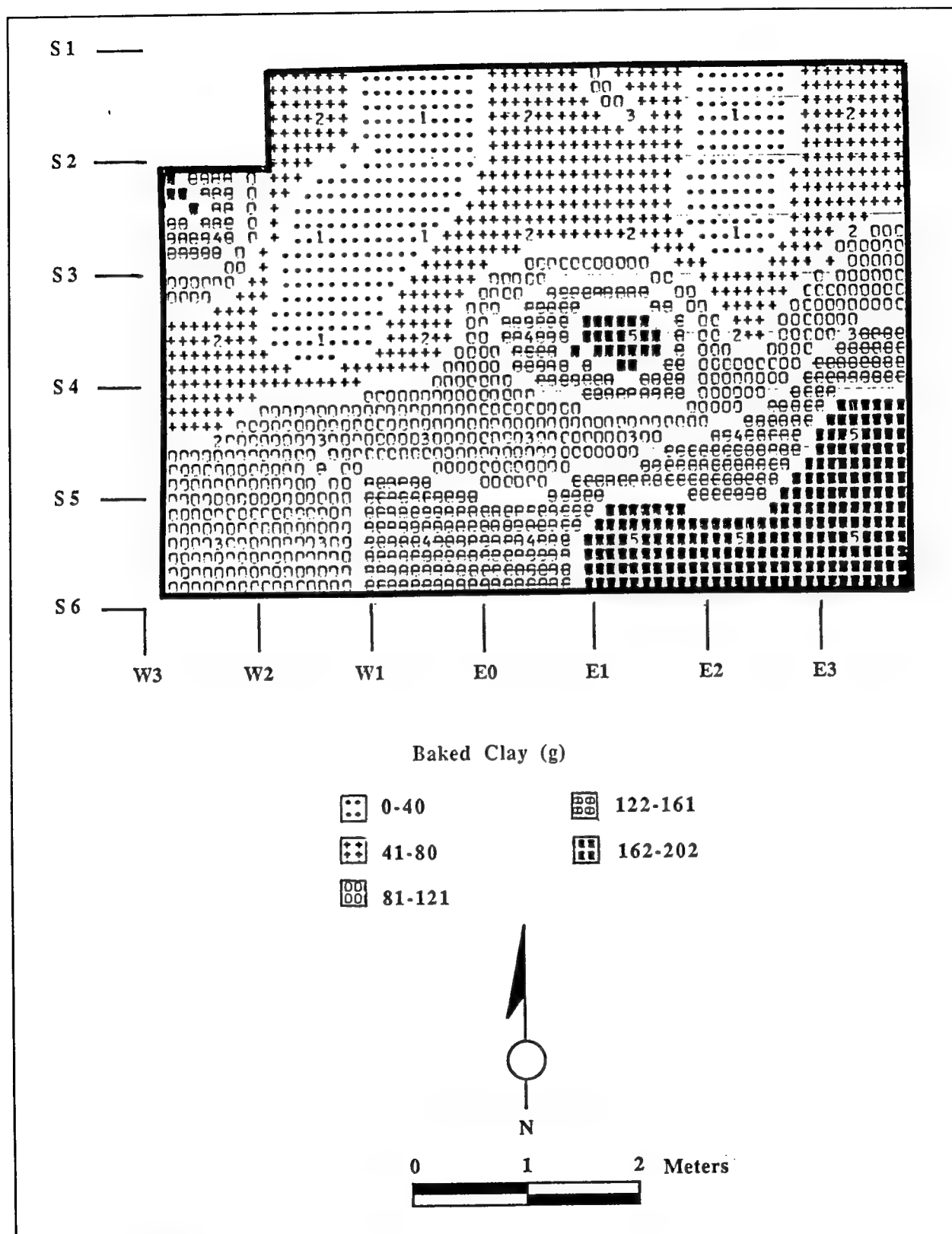


Figure 6-59. SYMAP showing the distribution of baked clay in Level 2 at 41DT80: the Thomas site.

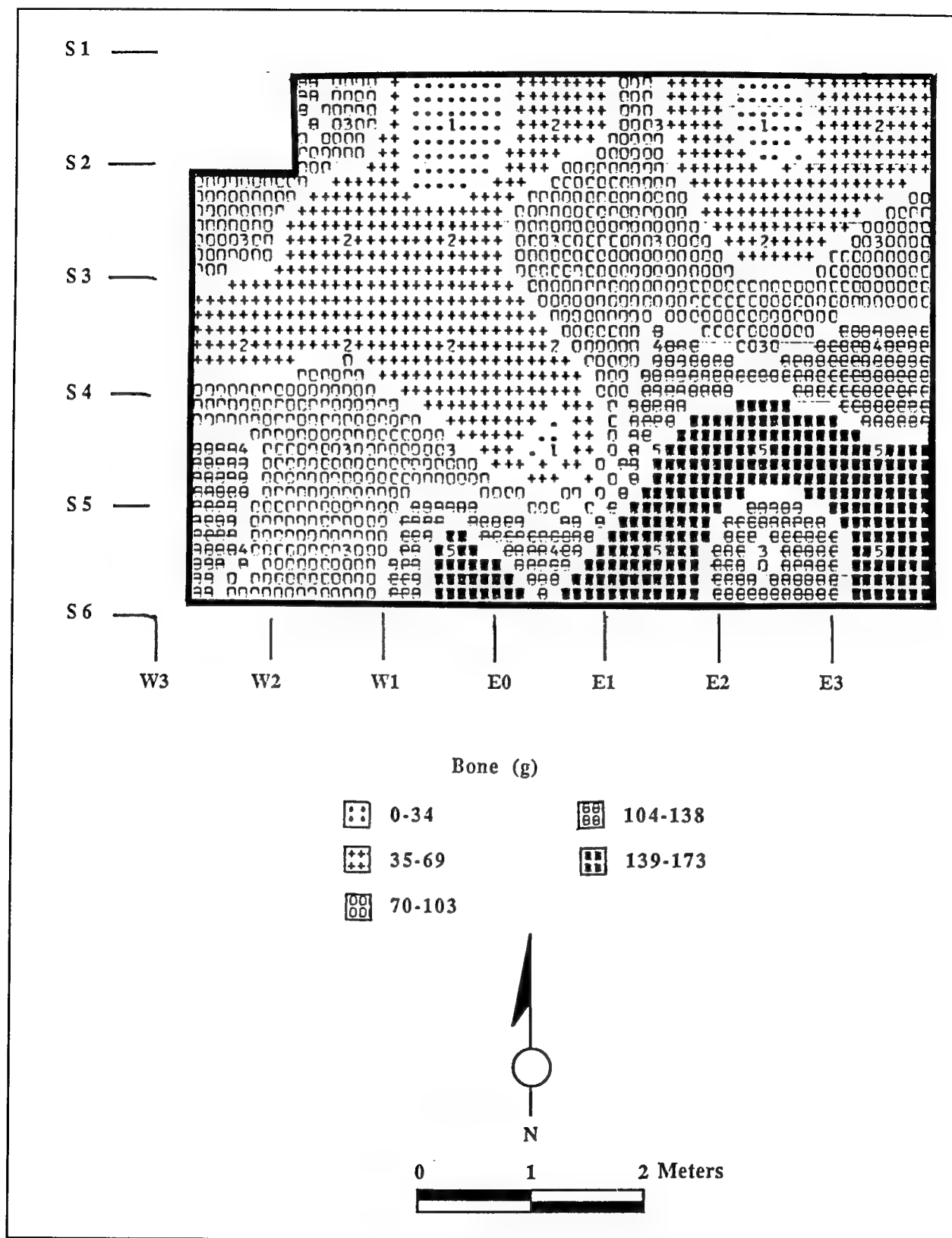


Figure 6-60. SYMAP showing the distribution of bone in Level 2 at 41DT80: the Thomas site.

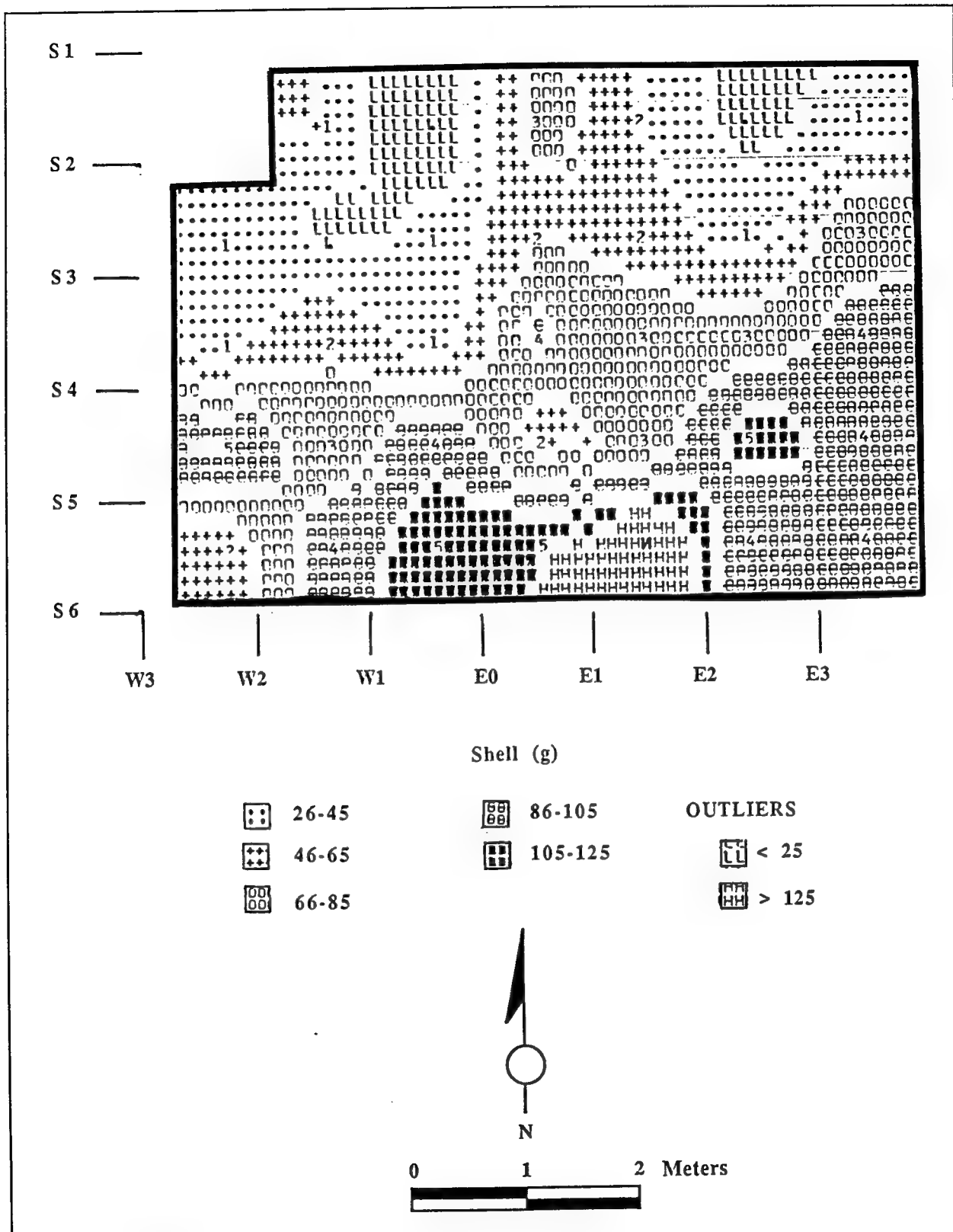


Figure 6-61. SYMAP showing the distribution of mussel shell in Level 2 at 41DT80: the Thomas site.

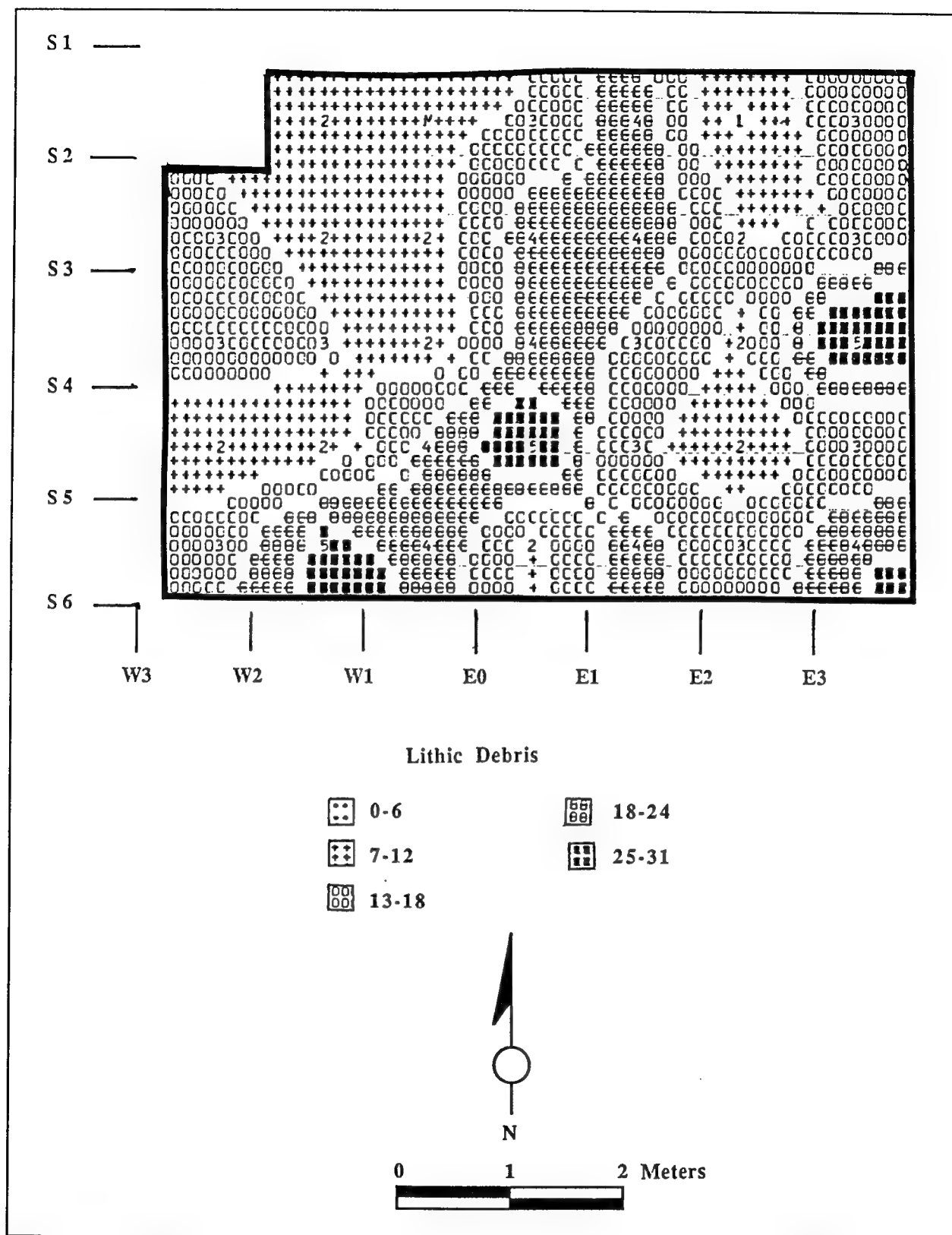


Figure 6-62. SYMAP showing the distribution of lithic debris in Level 2 at 41DT80: the Thomas site.

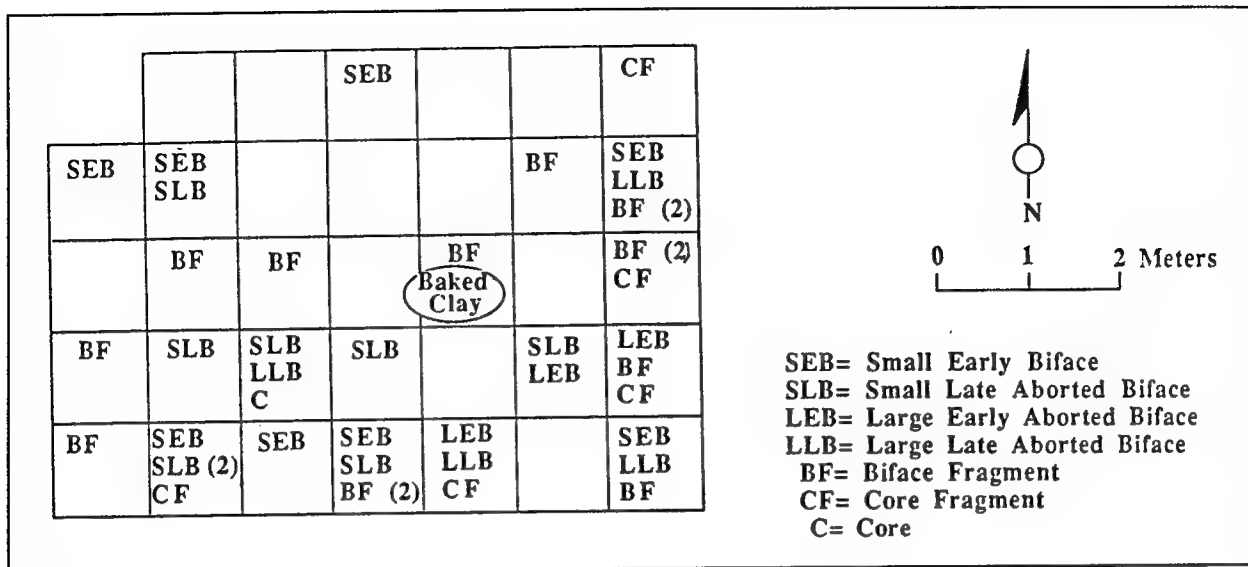


Figure 6-63. Distribution of bifaces and cores in Level 2 at 41DT80: the Thomas site.

with a low frequency of lithic debris. The area also contained a few points and tools, including a scraper, a graver, and a number of retouched pieces. Given the high frequency of food refuse remains in Area III, it is possible that the area functioned largely in food preparation activities. Area IV is located to the northeast of Feature 3, and contains a concentration of lithic debitage; with both large and small bifaces; biface and core fragments; a few ceramics; and a number of tools, including arrow and dart points, a gouge, several types of scrapers, and several retouched pieces. Once again, the lithic debitage, cores, and bifaces suggest lithic working as one of probably several activities carried out in this portion of the block.

Area V is identified north of Feature 3. This area of the block contains a concentration of lithic debris; both large and small aborted bifaces; some biface and core fragments; a moderate concentration of ceramics; and a number of tools, including both dart and arrow points, a bifacial graver, several scrapers, several spokeshaves, a burin spall, and several retouched pieces. These data suggest lithic working as well as some other types of tool-using activities.

The final area of artifact concentration on Level 1 is identified as Area VI, on the western side of the block. Area VI is characterized by a moderate concentration of lithic debitage in the northern part of the area, a number of both large and small aborted bifaces, biface fragments, cores, and split nodules; a few arrow and dart points; and a few tools, such as several scrapers, a burin spall, a graver, a denticulate, and several retouched pieces. Like Areas IV and V, Area VI shows some evidence of lithic working activities, but with some tools to suggest that other, unidentified activities occurred in the area as well.

Possibly intrusive features that can be identified on the SYMAPs for Level 1 include Feature 2, which may show up as high density areas of lithics and ceramics; and Features 11 and 9, which seem to show up as moderate to high density areas of baked clay. Feature 11 may be responsible also for a high density area of shell. Features 6 and 20, on the other hand, may be responsible for areas of low density for both baked clay and bone, while Feature 6 may appear as a low density area of fire-cracked rock, shell, and lithic debitage, as well. Finally, Feature 21, which has been identifiable on both Levels 2 and 3, seems to appear as an area of high bone and low lithic debitage on Level 1. Unfortunately, the equivalence of high or low artifact density areas with these features does not mean that they are all intrusive into Level 1 from the final, Late Caddoan occupation. Indeed, the firmly dated Feature 2 may appear as a high density area of both lithic debitage and ceramics on the SYMAPs and yet be dated to the Early Caddoan occupation of Level 1.

The final patterns to be examined in the horizontal distribution of artifact types at the Thomas site relate to what may be late period diagnostics in Level 1. This material includes, at least, the shell tempered ceramics and two late projectile points (e.g., Fresno and Talco).

In looking at the distribution of this presumed late material, only general patterns can be discerned (Figure 6-76). The shell tempered material is not evenly distributed, with a few sherds in the central part of the block, but most located in the southeastern corner with several crossmends between units. It appears that the main area of late period ceramics lay to the south of the excavation block at the Thomas site. The occurrence of shell tempered ceramics this view. A single Talco and a single Fresno point were

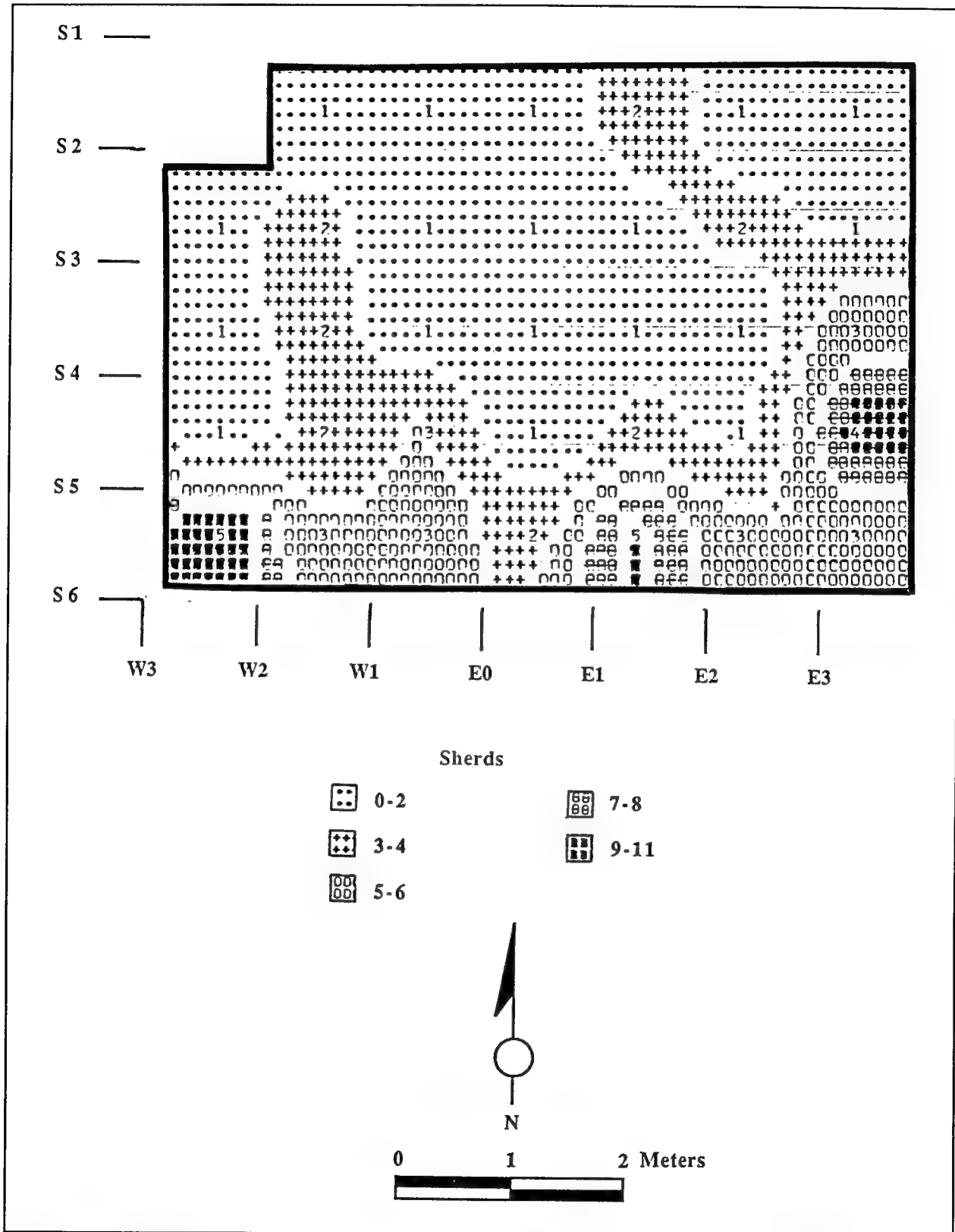


Figure 6-64. SYMAP showing the distribution of ceramic sherds in Level 2 at 41DT80: the Thomas site.

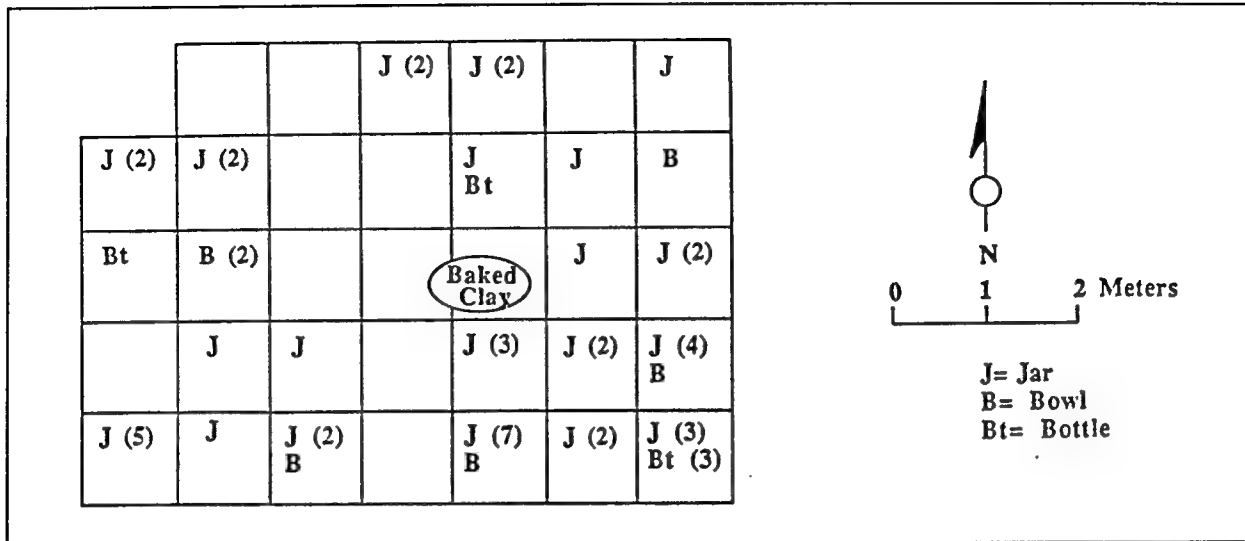


Figure 6-65. Distribution of Grog Tempered and Small Grog Tempered Ware sherds believed to be associated with Level 2 occupation at 41DT80: the Thomas site.

recovered from the central and east central areas of the block, respectively, but it is impossible to even speculate as to whether or not they represent primary activity areas in this portion of the site.

Unfortunately, we are unable to tell which of the other remains from Level 1 may date to this late occupation, but it has already been suggested that the "midden-like" appearance of Area II of Level 1, may be the result of a mixture of materials from an Early Caddoan activity area with that from a Late Caddoan midden dump. The horizontal patterning for all three levels at the Thomas site indicate a series of activity areas organized in relation to features identified as hearths. In several instances these activity areas appear to have become blurred through overlapping patterns and intrusive feature disturbances, but some tentative generalizations can be made at this point.

What appear to be three general "zones" of activities organized around the hearths at the Thomas site can be identified: one immediately surrounding the hearth, here termed the "circum-hearth activity zone"; one further away from the hearth, termed the "intermediate activity zone"; and possibly a third even further away from the hearth, here termed the "peripheral activity zone." Taking into account the variability from level to level, and the subjectivity involved in delimiting possible activity areas, it appears that the "circum-hearth activity zone" covered an area from the edge of the hearth to about one to two meters out. On all three levels of the Thomas site, there is evidence that some degree of lithic reduction or tool manufacture occurred in this zone, while on two of the

three levels, it appears that food preparation activities also may have occurred here. In Level 2 and Level 3, the area of lithic working seemed to be located to the south of the hearth, while the possible food preparation area was to the north. In Level 2, it is possible that a general activity area or a midden dump area may have been placed within a meter of the hearth, as well. The "intermediate activity zone" generally seems to have begun within one to two meters of the edge of the hearth, and extended ca. 3.5-4.5 m (11.5-14.76 ft) from the hearth. The activities in this zone seem to have included lithic working, food processing, and probably a number of other unidentified tool-using activities. Some midden dumping also may have occurred in this area. The "peripheral activity zone", beyond 4-5 m (13.1-16.4 ft) from the hearth, can be identified only on Level 3, where it seems to have been used either as a general activity area or as a midden dump (or both). However, the ability to distinguish between these two types of deposit is, at present, tenuous.

Concern with the process that lead to the formation of the archeological record has lead researchers to attempt to model the spatial arrangement of activities within sites. It has been ethnohistorically demonstrated that groups do tend to order activities around hearths and/or dwellings (Binford 1978, 1980). Unfortunately, there is no good evidence for any substantial or permanent structure associated with any of the excavated levels at the Thomas site, and the postholes that are identifiable bear no easily interpretable relationship to the above identified activity areas. These are probably associated with the later occupations based on depth.

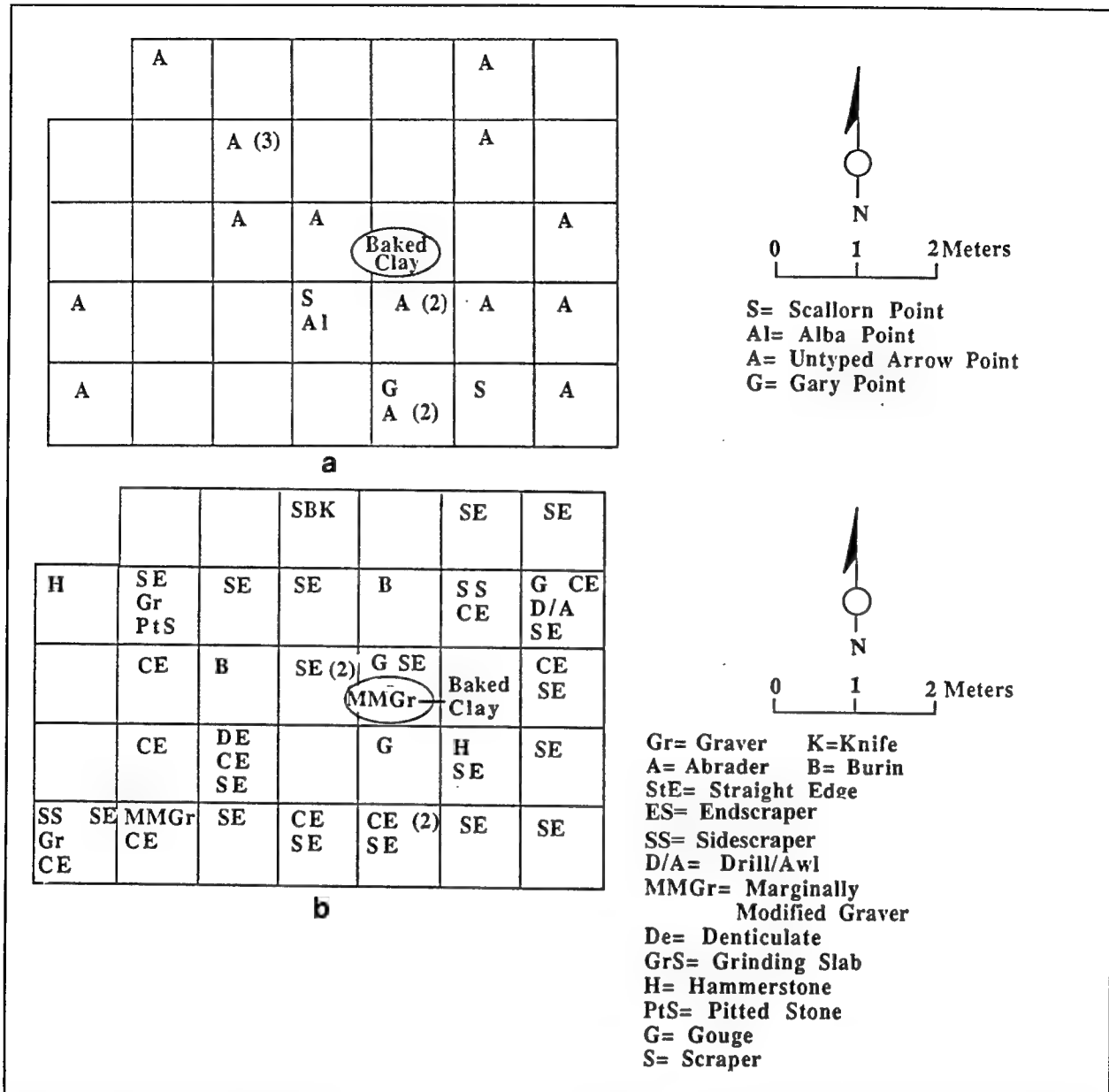


Figure 6-66. Distribution of projectile points (a) and tools (b) believed to be associated with the Level 2 occupation at 41DT80: the Thomas site. Note: Arrow points include only fragments, expanding stem types, and rectangular types.

INTERPRETIVE SUMMARY

The Thomas site (41DT80) is located on a low rise at the edge of an eroded terrace remnant on the north side of the South Sulphur River, within the area of the river's floodplain. The surface of the B horizon, underlying the archaeological deposits, suggests that the area may have been occupied originally because of the presence of a slight rise, and that subsequent reoccupations over the succeeding 150-200 years apparently resulted in the

deposition of a "midden mound" which is the rise visible today. Due to its proximity to the channel of the South Sulphur River, and the high likelihood of flooding in this area, it is difficult to believe that the site ever was occupied on a year-round basis. It seems probable that occupation was seasonal, instead, involving a summer to fall, or even completely fall, occupation during most years.

Subsistence patterns at the Thomas site appear to have involved intensive dependence on deer (as shown by

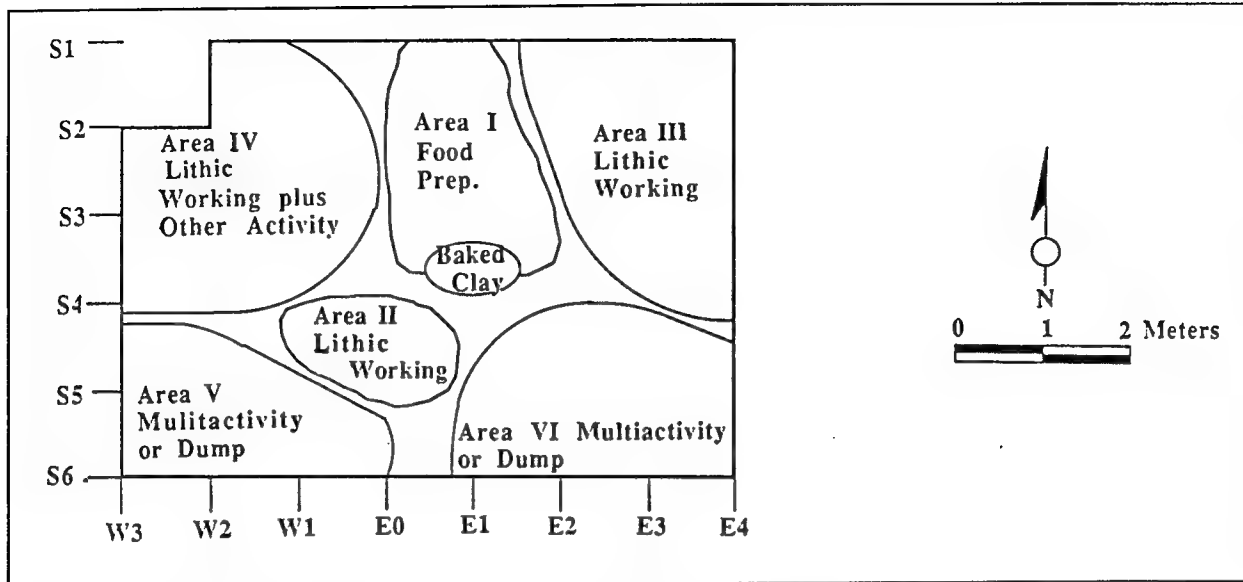


Figure 6-67. Hypothetical activity areas in Level 2 at 41DT80: the Thomas site.

both the 1972/73 and 1987 data), with possibly turtle (represented by a wide diversity of species) and turkey (the most common bird species represented in the 1987 sample) also being important in numbers, but not in available food. The primary molluscan resource used at the Thomas site was *Lampsilis radiata siliquioidea*, with *L. teres* and *Amblema plicata* of less importance (see Appendix H). Macrobotanical remains recovered by flotation of features at the Thomas site indicate that the most significant wild plant resources throughout the site's occupation included, in descending order of importance, hickory nuts, acorn, c.f. *Psoralea*, pecan, *Lathyrus/Vicia*, and *Chenopodium* (see Appendix G). In addition, the presence of squash and a small amount of maize indicates that at some point, the occupants of the site either practiced agriculture or had access to agricultural products through exchange with other groups.

Ceramics and projectile point data seem to suggest an occupation between A.D. 800-1200, during the early Caddo I period with a subsequent reoccupation (or reutilization) around A.D. 1600-1700, during the Late Caddo period (Thurmond 1985:189). A series of five radiocarbon dates suggests that the period of main site utilization and midden mound accumulation can be narrowed to ca. A.D. 950-1200 (see Appendix I), with no dates attributable to the later occupation. Using the vertical distribution of artifacts and features, as well as these dates, it has been possible to subdivide the occupational history of the Thomas site into three periods of occupation, with the first two representing the midden mound accumulation during the Early Caddo I period, from A.D. 950-1200, and the final period being historic

and tentatively dated to A.D. 1600-1700 during the Late Caddo period, on the basis of artifact associations. Of the two periods of midden mound accumulation during the Early Caddo I period, the earlier has been subdivided into an early and late facet, based on artifact differences between Level 2 and Level 3. A short discussion of the nature of each of these occupational periods follows.

The lower two levels of the block excavation have been combined into what will be tentatively referred to as Period I, largely because the radiocarbon dates which bracket this period are indistinguishable. The date range for these two levels suggests an occupation between A.D. 950 and 1050. One date of A.D. 1080 \pm 60 (SMU 1959, corrected) has been obtained for Feature 48, believed to date to the early part of Period I, while a second date of A.D. 1020 \pm 60 (SMU 1967, corrected) dates to the end of this period (Figure 6-79). The upper date has a calibrated 1 sigma range of A.D. 980-1030, while the lower one intersects the calibration curve in two places: the first ca. A.D. 1030, and the second ca. A.D. 1145 (see Appendix I). This lower date has a 51.3% probability of calibrating to the earlier intersection, and of dating ca. A.D. 980-1040.

The Period I occupation at 41DT80 has been subdivided into two facets on the basis of differences in the artifact assemblages of Level 2 and Level 3 in the block excavation. On the basis of ceramic evidence, the early facet of the Period I is believed to contain only Grog Tempered Plain and Burnished vessels, with only jar and bowl forms being identified for these types in Level 3 (Table 6-29). Projectile point associations are less clear-cut, but this early facet may be associated with the use of

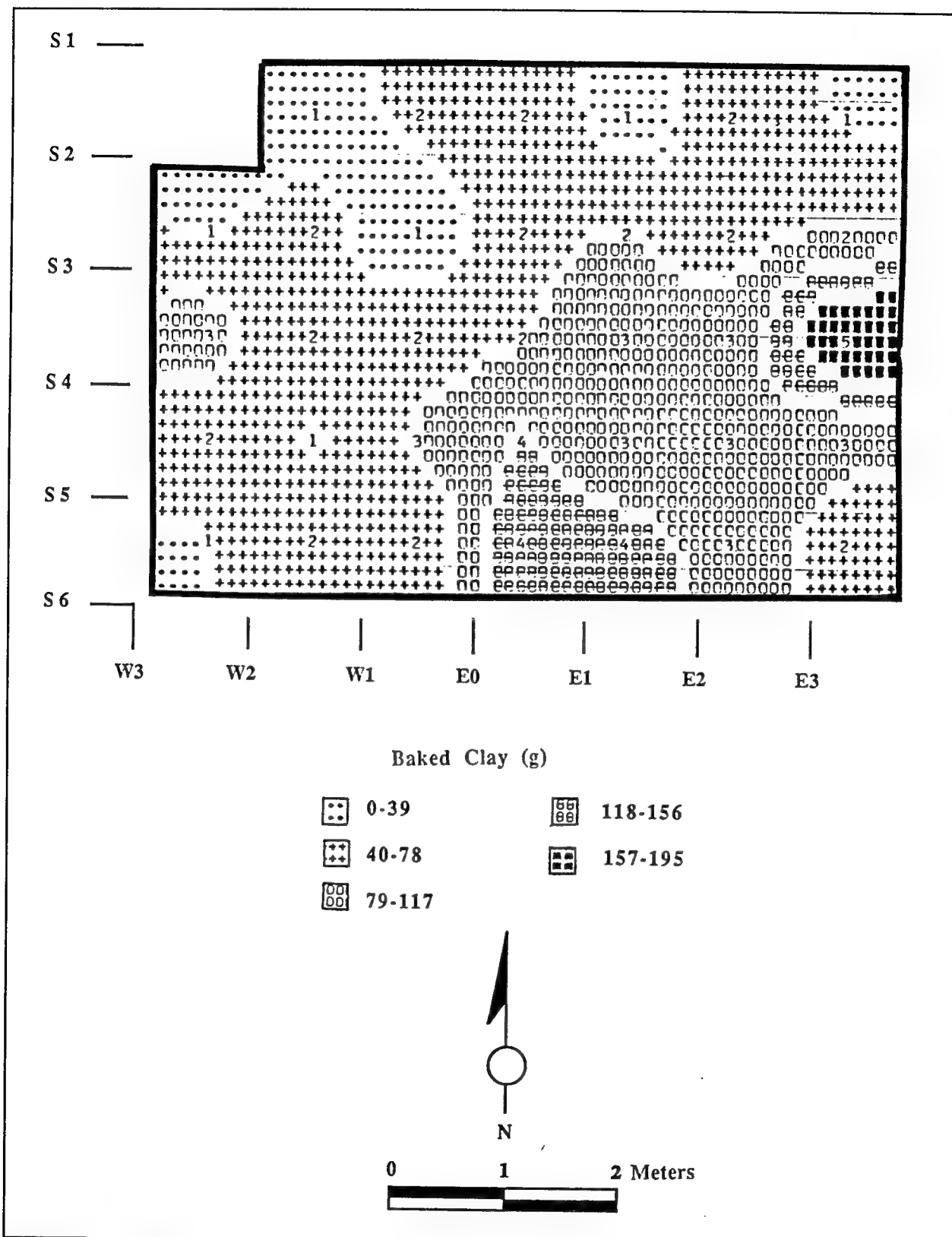


Figure 6-68. SYMAP showing the distribution of baked clay in Level 1 at 41DT80: the Thomas site.

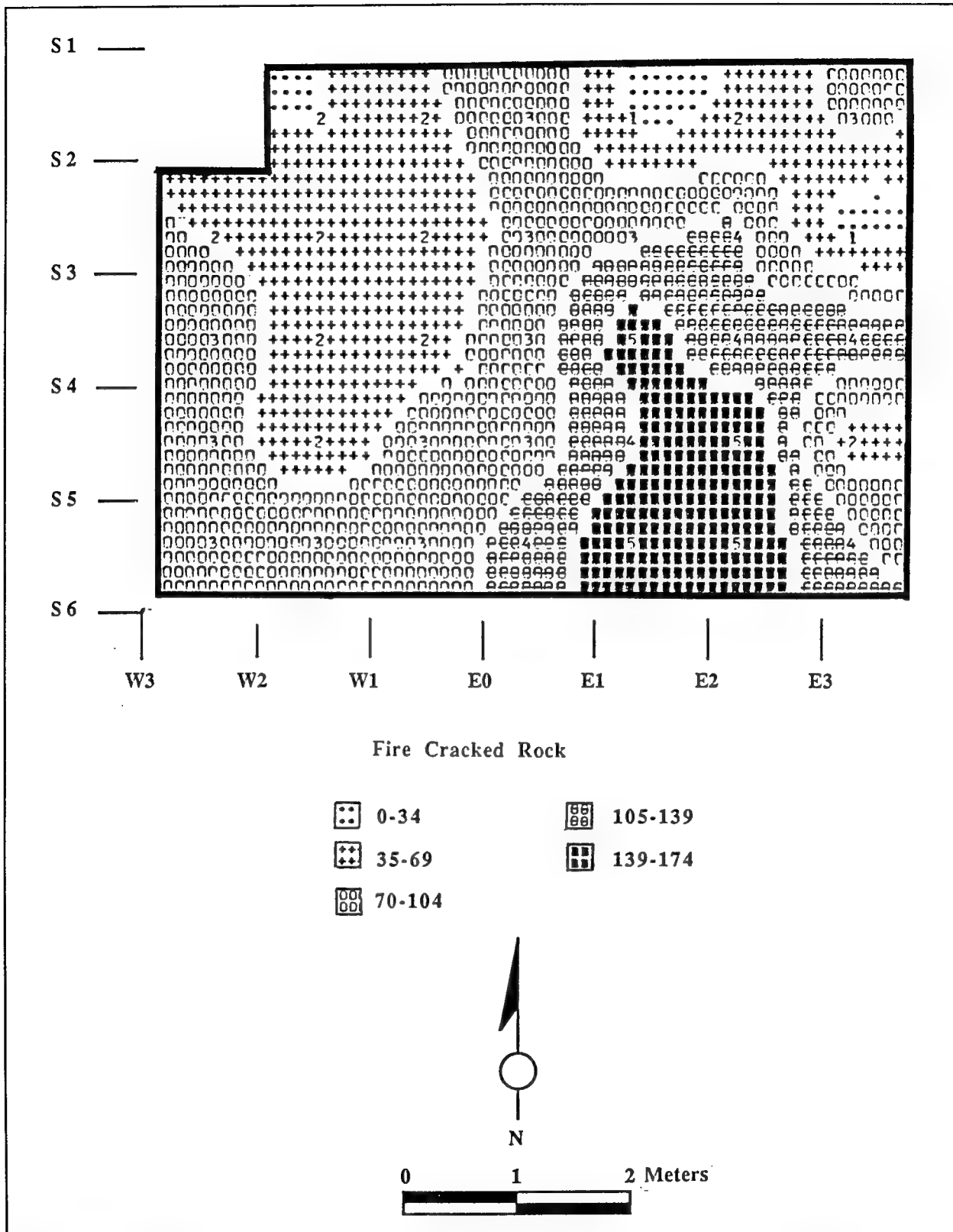


Figure 6-69. SYMAP showing the distribution of fire-cracked rock in Level 1 at 41DT80: the Thomas site.

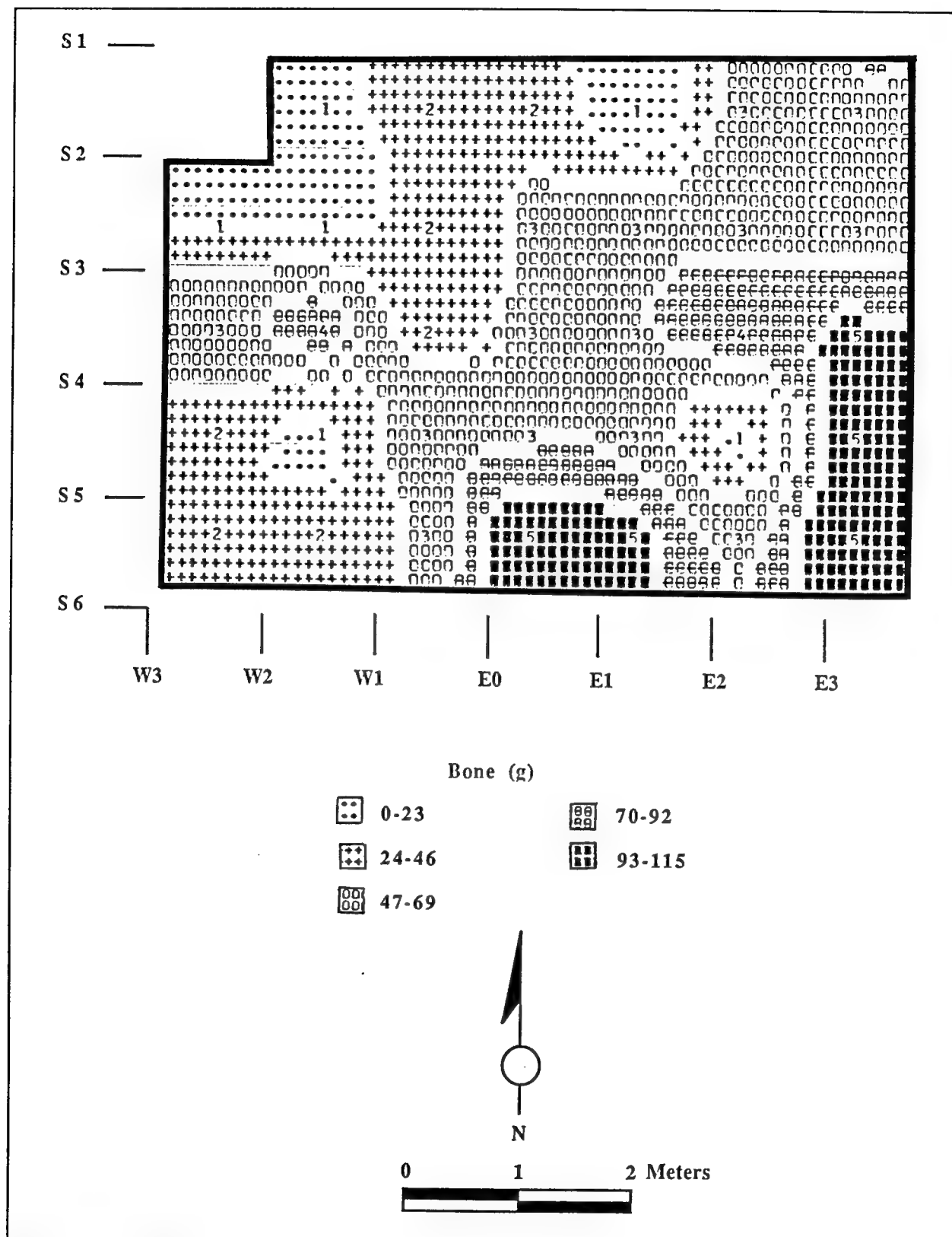


Figure 6-70. SYMAP showing the distribution of bone in Level 1 at 41DT80: the Thomas site.

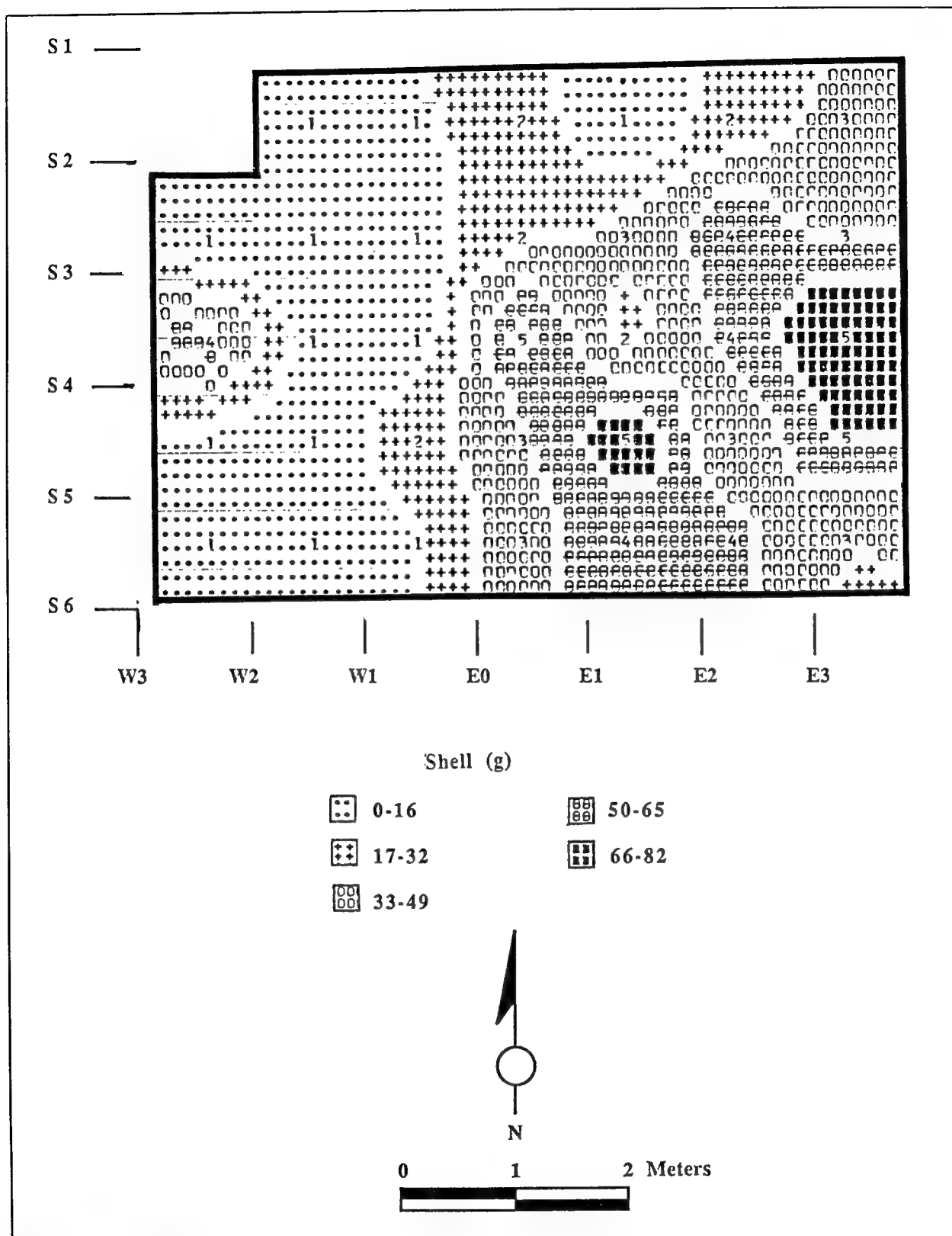


Figure 6-71. SYMAP showing the distribution of mussel shell in Level 1 at 41DT80: the Thomas site.

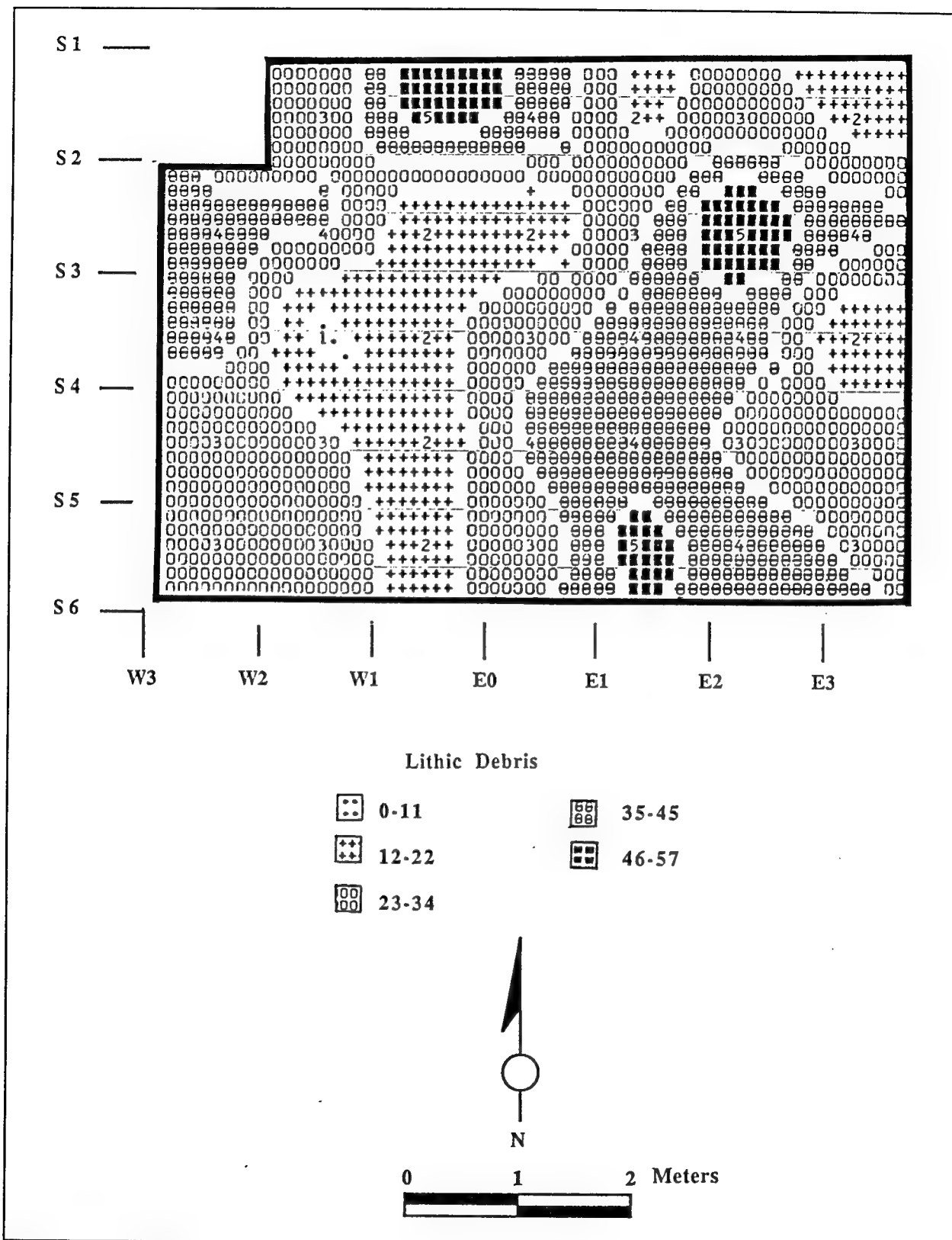


Figure 6-72. SYMAP showing the distribution of lithic debris in Level 1 at 41DT80: the Thomas site.

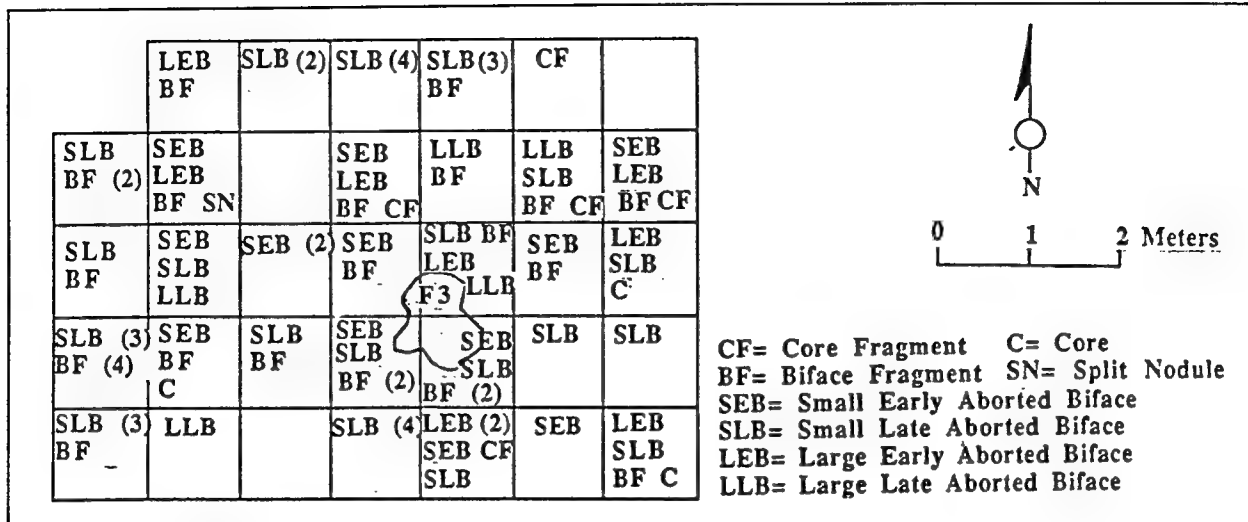


Figure 6-73. Distribution of bifaces and cores in Level 1 at 41DT80: the Thomas site.

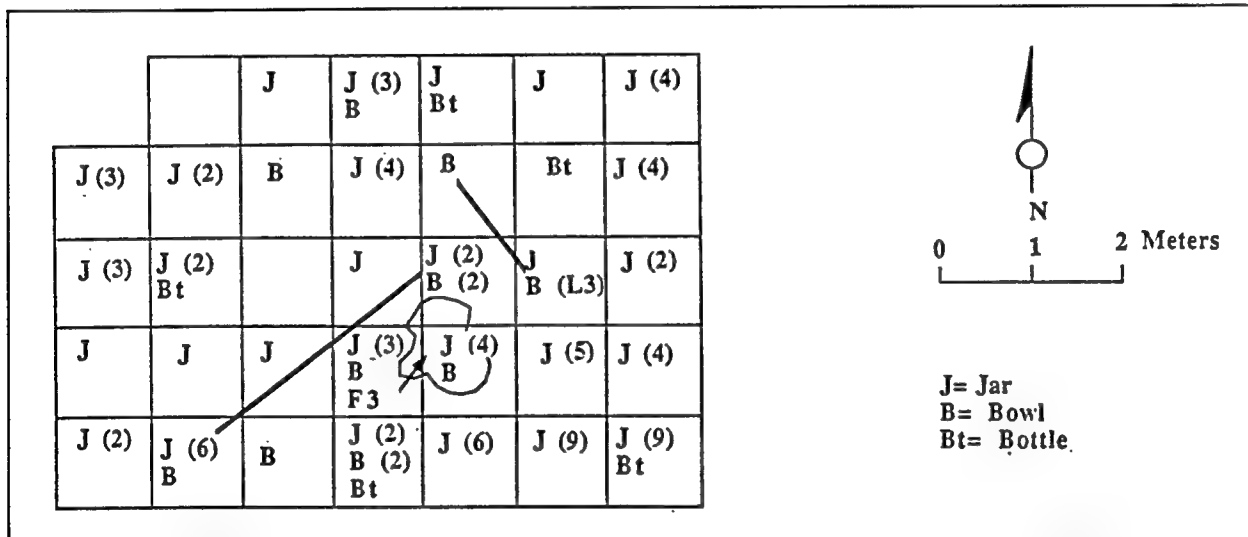


Figure 6-74. Distribution of Early Caddo ceramic sherds believed to be associated with Level 1 occupation at 41DT80: the Thomas site; showing crossmends among the sherds.

Scallorn arrow points, along with several types of dart points, including unspecified varieties of Gary points. The only feature associated with this occupation at present is Feature 48, a hearth around which a number of activities appear to have been organized, including food preparation and lithic reduction.

The macrobotanical remains associated with the early facet of Period I (from Feature 48) show a utilization of hickory nuts, acorns, and cf. *Psoralea* (Table 6-30). Squash remains, but no maize remains, were recovered from Feature 48, supporting the notion that the cultivation of squash took precedence over maize in the Cooper area. Given the high likelihood of the Thomas site being

occupied only on a seasonal basis, the macrobotanical data seem to indicate a late summer to fall occupation at the site during the early facet of the Period I.

The definition of the later facet of Period I is based on the material recovered from Level 2 of the block excavation. The ceramics believed to be associated with this facet include the earlier types of Grog Tempered Plain and Burnished, plus the added types, Small Grog Tempered Plain and Small Grog Tempered Burnished. In addition, the assemblage seems to contain a wider variety of projectile points than did the earlier facet, including expanding stem types (Serrated and Scallorn), rectangular stem types (Serrated, Alba, and Untyped), unspecified

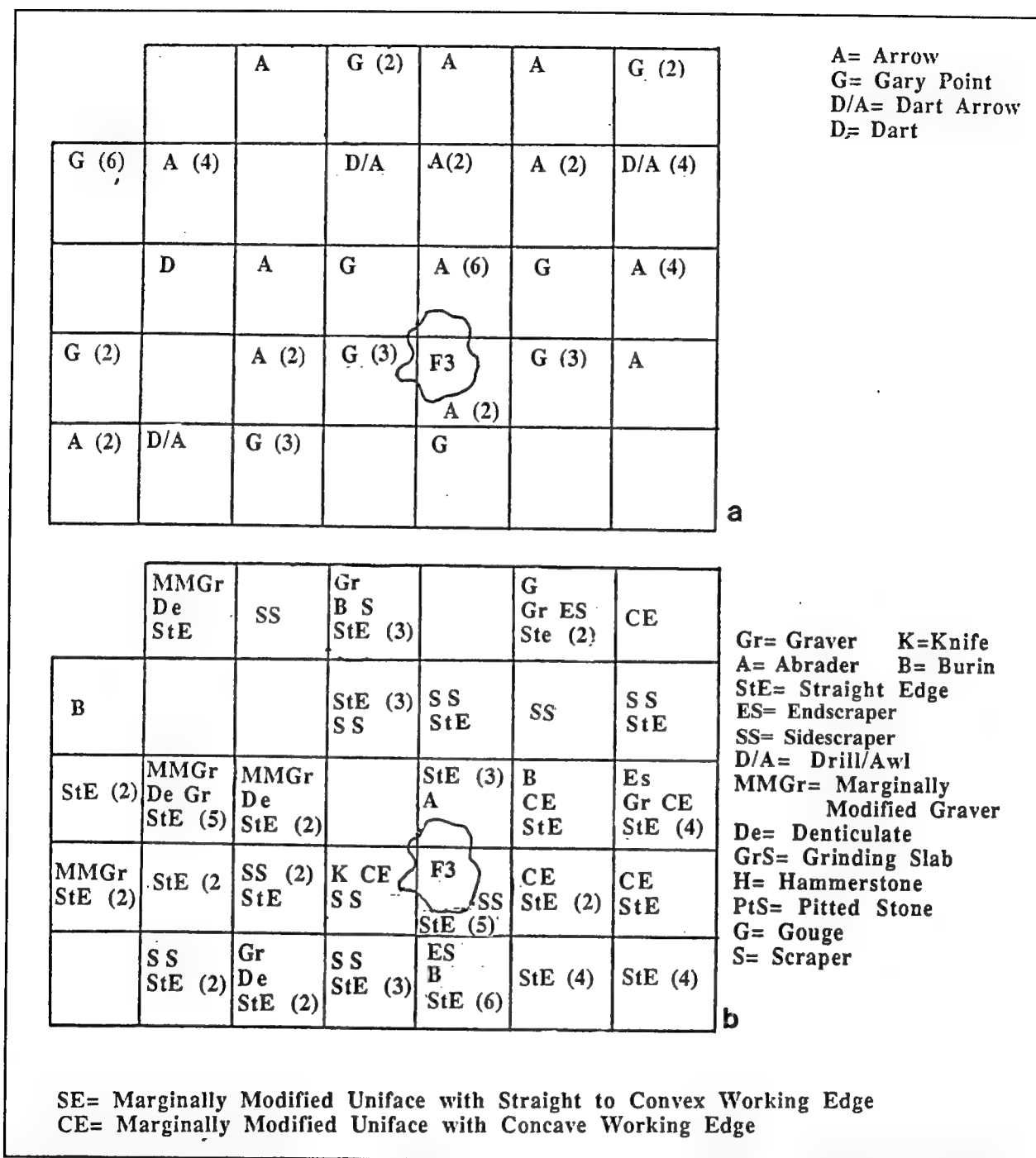


Figure 6-75. Distribution of Early Caddo materials in Level 1 at 41DT80: the Thomas site; (a) projectile points and (b) lithic tools.

varieties of Gary points, and possibly a few bulbar stem points. No features can be positively associated with this facet, but Burial 6 may date to this occupation. In addition, the hearth, Feature 3, is believed to date around the end of this facet; either in late Period I or early Period

II. The macrobotanical associations with this facet are unclear, but the remains associated with Feature 3 suggest there was little or no change from the early to the late facet of Period I.

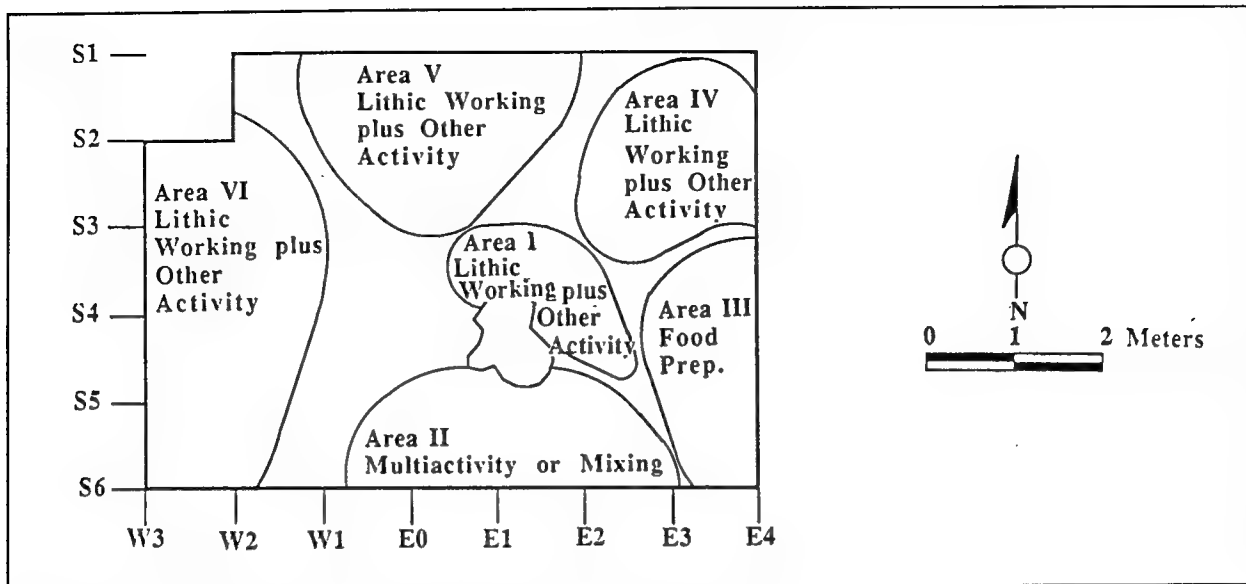


Figure 6-76. Hypothetical areas in Level 1 at 41DT80: the Thomas site.

The model of a non-maize producing, agricultural population finds additional circumstantial support in the health status of the remains of Burial 6, possibly dating to the Period I occupation. While the development of the long bones from Burial 6 suggests delayed growth, possibly related to nutritional inadequacy or metabolic disturbance, the skeletal remains failed to exhibit any evidence of pathological lesions. This was the only well preserved skeleton from the 1987 excavations at 41DT80 not to do so (see Appendix C). Burial 6 also exhibited the highest frequency of enamel hypoplasias and other dental disturbances in the entire Cooper sample, but only three caries (and no abscesses). These data, although admittedly limited, show nutritional stresses that could be related to either an uncertain hunting-gathering economy or a drought-prone agricultural economy; but without the paleopathological indicators or high frequency of dental caries characteristic of a population during a time of subsistence transition or early maize agriculture (Bousman, Collins, and Pertulla 1987). Period I may have been one mixing horticultural and collecting activities, with some cultivation of squash, but no cultivation of maize.

The identification of the Period II occupation is based upon the artifacts recovered from Level 1, and radiocarbon dates from several features. This period is dated to ca. A.D. 1050-1200. The date of A.D. 1020 \pm 60 for Feature 3 (SMU 1967, corrected) brackets the beginning of this period, while the ending date is based on three feature dates: one of A.D. 1110 \pm 110 for Feature 12 (SMU 1968, corrected) and another of A.D. 1120 \pm 50 for Feature 2 (SMU 1903, corrected), and the third of A.D.

1190 \pm 30 for Feature 23 (SMU 2025, corrected). This period is associated with the addition of decorated ceramics to the existing assemblage of Grog Tempered and Small Grog Tempered Plain and Burnished types (Table 6-31). The new decorative modes include engraving, application of fillets, incising, finger impressing or punctuation, slipping, and painting (the latter two in very low frequencies). The Period II ceramic assemblage also includes three new wares; Coarse Grog Tempered Ware, Grit Tempered Ware, and Bone Tempered Ware. Period II also is associated with high frequencies of Rounded Stem, Bulbar Stem, and Contracting Stem Serrated arrow points, plus Catahoula and Untyped, Contracting Stem points, along with Weak Shouldered and unspecified varieties of Gary dart points. A few earlier point types, plus Friley arrow and untyped dart points may occur in low frequencies as well.

Three features (e.g., Feature 2, Feature 12, and Feature 23) can be firmly assigned to the Period II occupation, with Feature 3 dating to either late Period I or early Period II (see above). An additional three features (e.g., Feature 20, Feature 32, and Burial 3) can be dated to Period II on ceramic evidence. As is true for Period I, the faunal remains associated with Period II indicate dependence on deer, turtle, and turkey (see Appendix D). The primary molluscan species is *Lampsilis* (see Appendix H). The associated features (especially, Feature 2) also show a surprisingly diverse pattern of plant utilization during this period (see Appendix G). All of the plants (both wild and cultivated) in use during the Period I, were still important during Period II, including hickory nut, acorn, cf. *Psoralea*, and squash. Additions, however,

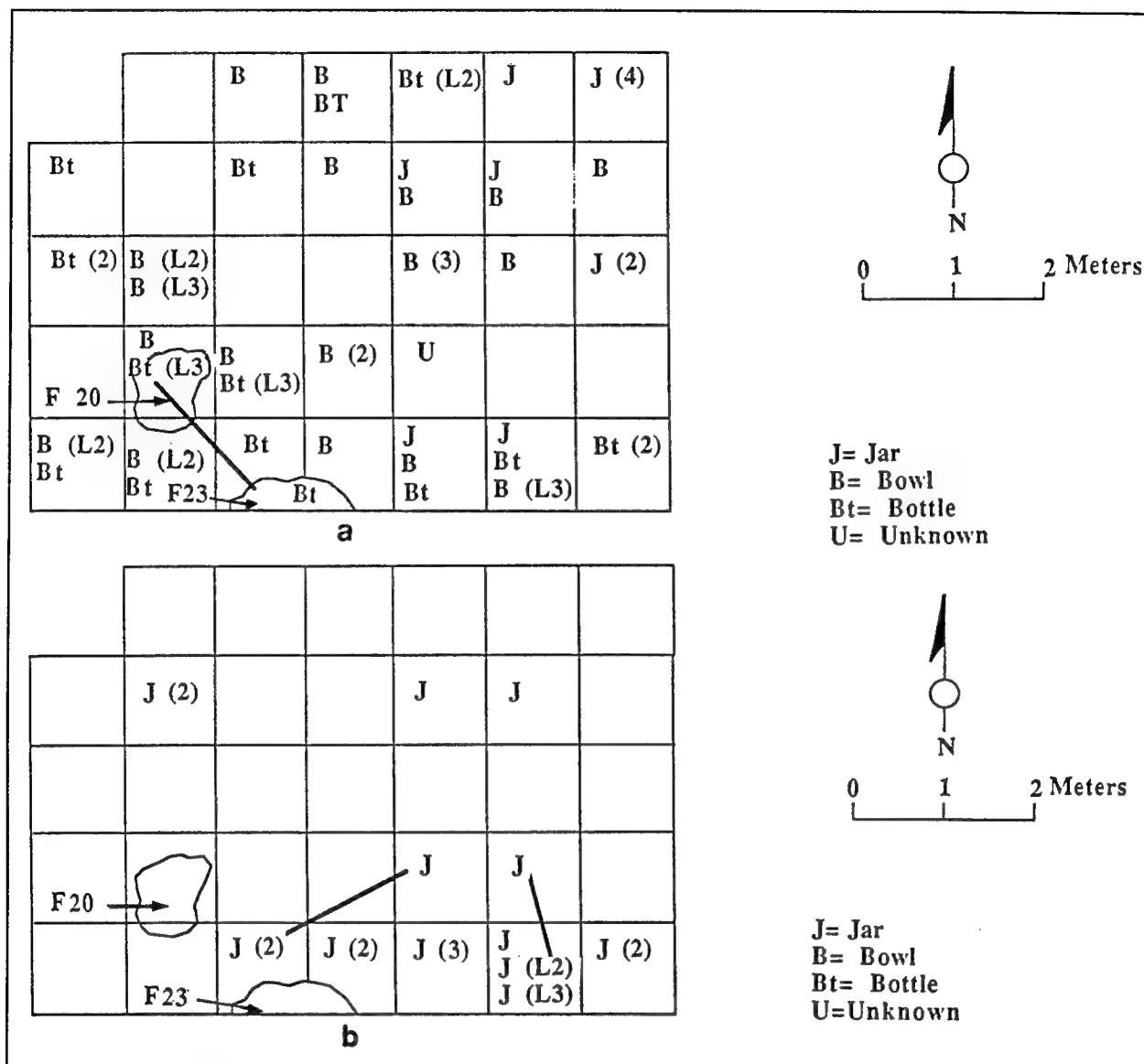


Figure 6-77. Distribution of ceramics at 41DT80: the Thomas site block excavation; (a) Grit Tempered Ware sherds and (b) Shell Tempered Ware sherds.

include pecan, *Iva annua*, *Chenopodium*, and, most interestingly, maize (see Tables 6-4 and 6-5) suggesting a progressive trend toward agriculture. The 14 caries from Burial 3 are the highest number in the Cooper sample, and strongly suggests that maize was an important component of the diet. Apart from the high caries rate, Burial 3 revealed several fractures and extensive infectious lesions leading to the conclusion that "this individual suffered from a systemic infection" and possibly degenerative arthritis (see Appendix C). As is the case for the Period I, the macrobotanical data is consistent with a late summer to fall occupation of the site, given the site's situation in regard to spring flooding.

The final period of occupation at 41DT80, Period III, apparently occurred after a hiatus of at least several hundred years, and is based on the presence of several late types of projectile point (e.g., Fresno and Talco), and Shell Tempered Ware ceramics. On the basis of the associated point types, this reoccupation is dated tentatively to the latter part of the Late Caddo period (ca. A.D. 1600-1700). Tentative ceramic associations include only Shell Tempered Plain.

The analysis of the data collected from the Thomas site to date, suggests that throughout its history the site functioned as a seasonal camp, located on an eroded terrace rise very close to the South Sulphur river, and

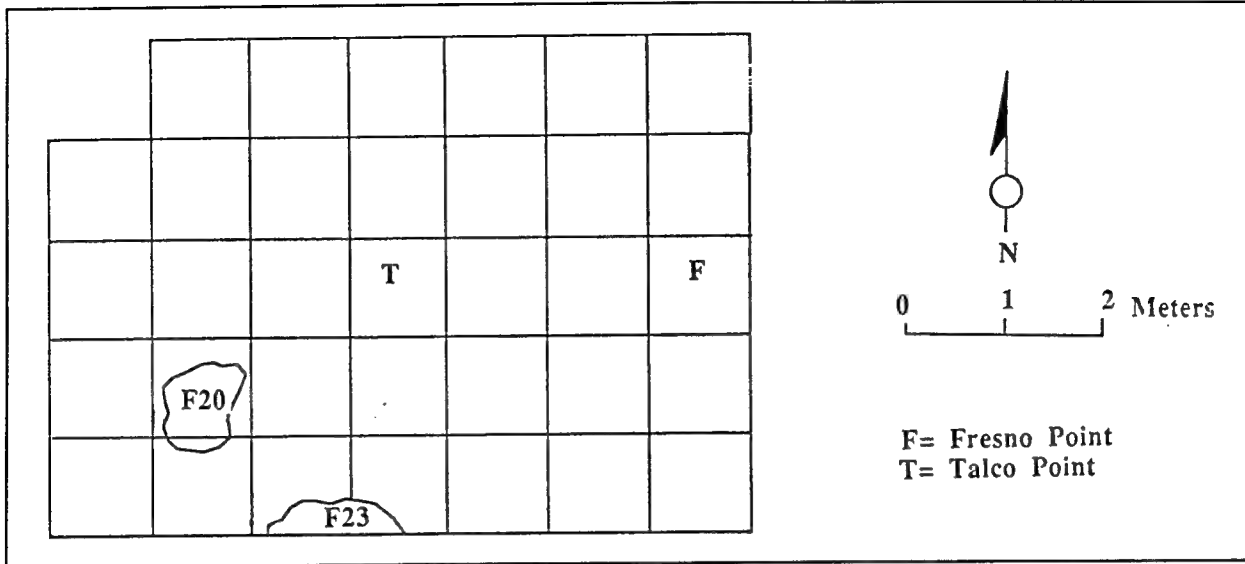


Figure 6-78. Distribution of Late Caddo projectile points in the block excavations at 41DT80: the Thomas site.

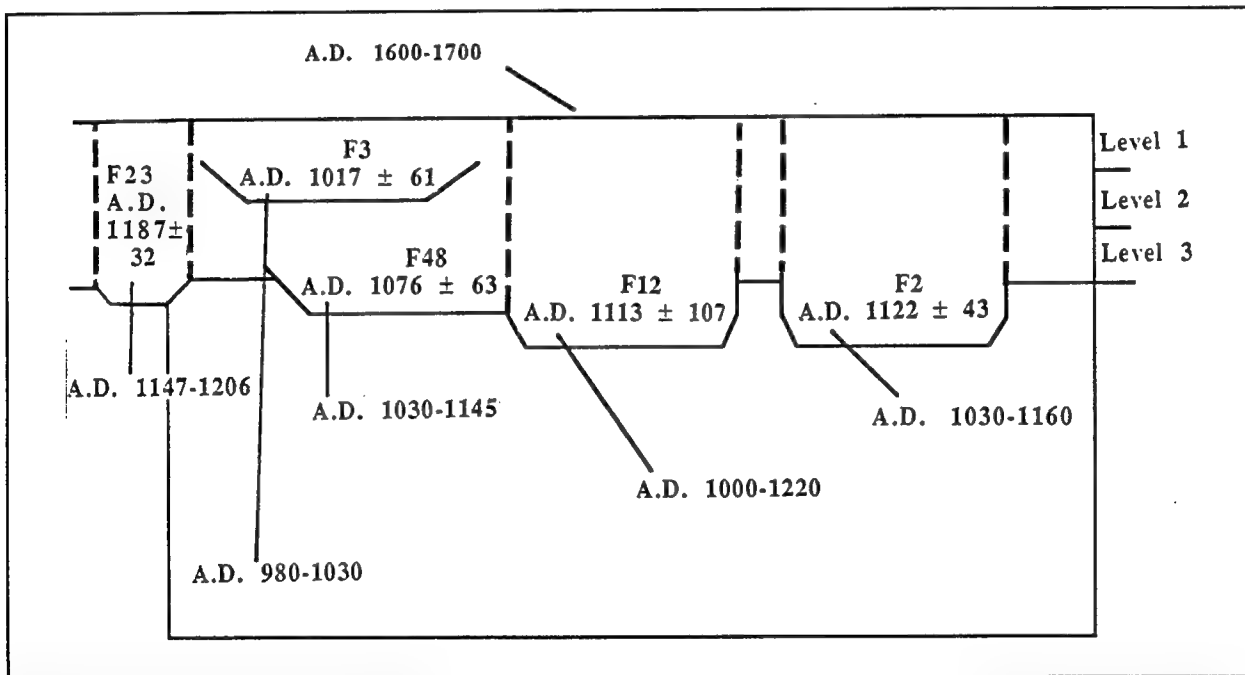


Figure 6-79. Schematic diagram of dating at 41DT80: the Thomas site. Dates below Level 3 area 68% confidence limits for the calibrated age of each sample.

probably occupied during the late summer and fall months. The major period of occupation occurred during the Early Caddo I period, between ca. A.D. 950-1200, and was intensive enough to result in the accumulation of an occupation or "midden" mound on the site. This period witnessed the introduction of decorated, Caddoan-tradition pottery and maize agriculture ca. A.D. 1050. Following A.D. 1200, utilization of the site area ceased

and was not resumed until several hundred years later. This hiatus may be the result of settlement pattern and subsistence shifts and appears to be mirrored at other sites in the Cooper area (see Chapter 10). The late reutilization of 41DT80 is dated tentatively at ca. A.D. 1600-1700, during the Late Caddo period, and appears to have been of a more ephemeral nature than was the Early Caddo I occupation, with no midden accumulation, very few

TABLE 6-29

Tentative Vessel Form By Occupation

Form	Period III ¹		Period II ²		Period I			
	#	%	#	%	Late Facets ³		Early Facet ⁴	
					#	%	#	%
Bowl	20	34	16	14	8	13.5	5	25.0
Jar	23	40	95	81	46	78.0	15	75.0
Bottle	15	26	6	5	5	8.5	—	—
Total	58	—	117	—	59	—	20	—

¹ Includes only shell tempered material from all levels.² Includes all Level I material, other than Late material (see above), and grit tempered sherds plus all other decorated material.³ Includes Grog and Small Grog Tempered Plain and Burnished sherds in Level 2 and Small Grog Tempered Plain and Burnished sherds in Level 3.⁴ Includes only Grog Tempered Plain and Burnished sherds in Level 3.

TABLE 6-30

Tentative Temporal Association Of
Macrobotanical Remains

Plant Remains	Period III	Period II	Period I
Wood Charcoal	+	+	+
Hickory Nutshell	+	+	+
Pecan Nutshell	+	+	-
Acorn	+	+	+
Nutmeat	-	+	-
Maize	-	+	-
Squash	+	+	+
cf. <i>Psoralea</i>	+	+	+
<i>Iva Annua</i>	-	+	-
<i>Chenopodium</i>	+	+	-
<i>Graminaceae</i>	-	+	-
Unidentified Seed			
Fragment	+	+	-
Unknown	+	+	+

projectile points, and a ceramic assemblage which appears to be incomplete in comparison to those of the earlier periods.

TABLE 6-31

Tentative Decorative Technique By Period Of Occupation

	Period III ¹		Period II ²		Period I			
	#	%	#	%	Late Facets ³		Early Facet ⁴	
					#	%	#	%
Plain	39	66	59	48	31	50.8	9	45
Burnished	11	19	19	16	30	49.2	11	55
Incised	—	—	10	8	—	—	—	—
Finger Impressed	—	—	30	25	—	—	—	—
Slipped	—	—	2	1.5	—	—	—	—
Painted	—	—	2	1.5	—	—	—	—
Engraved	5	8	—	—	—	—	—	—
Engraved/Punctate	1	2	—	—	—	—	—	—
Appliqué Fillet	3	5	—	—	—	—	—	—
Total	59	—	122	—	61	—	20	—

¹ Includes only shell tempered ware from all levels.² Includes small grog, grit, and coarse grog tempered ware decorated types from all levels.³ Includes small grog tempered plain and burnished sherds from Level 3.⁴ Includes only grog tempered plain and burnished sherds from Level 3.

ARCHAEOLOGICAL INVESTIGATIONS AT 41DT124: THE DOCTORS CREEK SITE

William A. Martin

with contributions by Bonnie C. Yates
and Cathy J. Crane

7

During the spring and summer of 1987, a concentrated effort was directed toward investigation of site 41DT124, the Doctors Creek site, which proved to be one of the most productive early Late Prehistoric deposits encountered in the reservoir. The site was first recorded and tested in early spring, and excavated during the summer in connection with the intensive excavations of sites in the dam and borrow study area. The following discussion is divided into three major sections: the site environment, the results of archaeological survey and testing, and the results of the mitigation phase.

SITE ENVIRONMENT

The Doctors Creek site was recorded during the 1987 survey. It is situated on a Pleistocene terrace, ca. 20 m (65.6 ft) south of Doctors Creek and extending uphill toward the southeast. The elevation at the junction of the floodplain and the terrace is ca. 125 m (418 ft) above mean sea level (amsl), and the elevation on top of the terrace is ca. 425 ft (127.5 m) amsl. This site is fairly large, measuring ca. 100 m (328.1 ft) north-south by 130 m (426.6 ft) east-west, with a fence line running roughly north-south bisecting the site. The western edge of the site is ca. 100 m (328.1 ft) east of the road running south from the City of Cooper to Harper's Crossing. The eastern boundary falls near the middle of a stock tank. Most of the landform is covered by pasture, consisting of grasses and

forbs, with hardwood forest paralleling the creek on the north. In addition, a cluster of trees covers the hilltop where a recent historic house once stood (Figure 7-1).

Harper's Crossing is located ca. 2.8 km (1.7 mi) south southeast of the site, and the South Sulphur River is ca. 2.5 km (1.6 mi) to the southeast at its closest point. However, the distance from the site to the river along Doctors Creek is ca. 5.4 km (3.36 mi). The soil over most of the site has been mapped as Annona loam, except for the portion at the base of the slope near the river mapped as Kaufman clay (Ressel 1979). Only a very small portion of the northern edge of the site is covered by a thin lens of floodplain clay, whereas the vast majority of the deposit is within a sandy loam matrix. Much of the hill slope had been severely eroded, probably as a result of agricultural practices conducted during the early twentieth century, causing the sandy loam top soil to wash downslope.

Historic and prehistoric components were identified at the Doctors Creek site, but all work beyond the survey level was focused on the prehistoric component. The historic component (ca. 1940s-1950s) was confined to a 40 x 50 m (131.2 x 164 ft) area on the crest of the landform encompassing a livestock pen, a shed, the remains of a house (e.g., foundation piers and floorboards), and a trash-filled well depression about 20 m (65.6 ft) west of the house remains. Further investigations at the historic component were not warranted due to the lack of contextual integrity and its

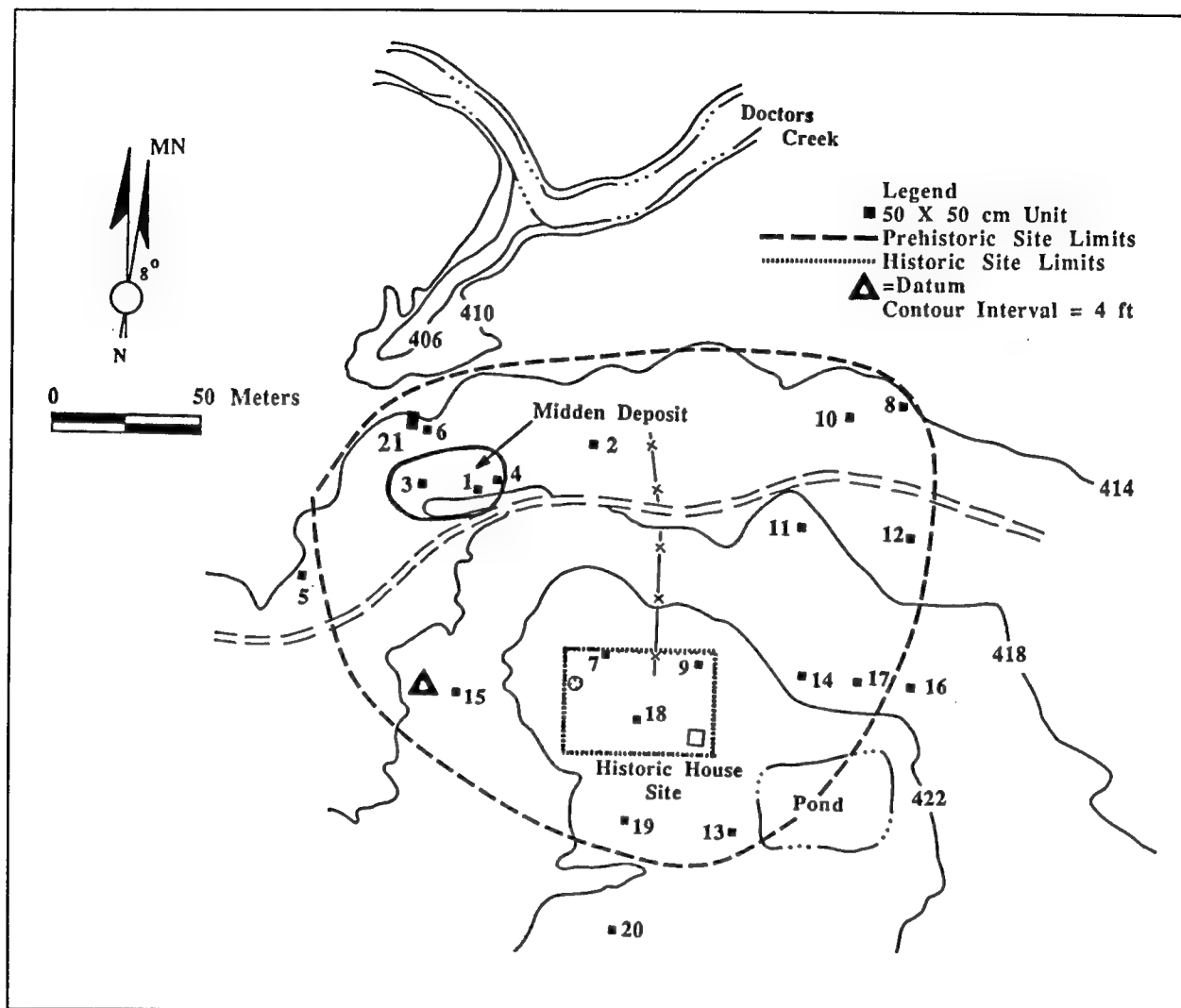


Figure 7-1. Location of initial excavation units at 41DT124: the Doctors Creek site.

recent age. Prehistoric artifacts were also observed on this portion of the site, but the densest concentration of prehistoric artifacts was observed downhill near the base of the slope.

SURVEY AND LIGHT TESTING

Subsurface investigations during the 1987 survey included shovel tests spaced at 15-20 m (49.2-65.6 ft) intervals. This includes ca. 40 shovel tests dug along the terrace surface to determine site boundaries. A Gary point was found in a shovel test on the northeastern edge of the site, and a midden deposit yielding lithics and mussel shell was found at the base of the northwest slope. Several shovel tests yielded flakes and/or fire-cracked rock at a rate of three to five artifacts per shovel test, a much higher artifact density than found at most other sites. In addition,

mussel shell was recovered from the northwestern slope in a dark soil zone that appeared to represent a midden.

During the light testing program, twenty 50 x 50 cm (19.7 x 19.7 in) units and a 1 x 2 m (3.28 x 6.6 ft) unit were dug at this site to determine site limits and depth of the deposit (Figure 7-1). Units 1-6 were dug at 5-20 m (16.4-65.6 ft) intervals along the base of the slope on the north side of the farm road to examine the area of dark midden-like soil. Unit 6 revealed a surprisingly deep deposit, extending down to 115 cm (45.3 in) below surface. Unit 21, a 1 x 2 m (3.28-6.6 ft) unit excavated in arbitrary 10 cm (3.9 in) levels, was emplaced 50 cm (19.7 in) west of Unit 6 to more fully explore this deep deposit. Units 8 and 10 were dug in a similar setting along the northeastern part of the site to search for additional midden deposits, but none were found. Three units (Units 7, 9, and 18) were dug on top of the landform to sample

the area of historic occupation. The remaining units were spread across the landform to determine the maximum horizontal extent of the site. Most units were dug down to clay as a single level, with the matrix dry screened through 6.4 mm (.25 in) mesh. However, in Units 1 and 3, the midden deposit was removed and excavation ceased in the light brown sandy loam beneath the midden because of the drastic drop in artifact density observed in that layer. Depth of the deposit ranged from 5 cm (2 in) on the lowest portion of the landform (Unit 5) to as deep as 115 cm (45.3 in) along the low knoll on which Units 6 and 21 were located. However, the majority of units yielded artifacts down to a depth of about 30 cm (11.8 in) below surface.

Site stratigraphy varied considerably across the site. A more detailed discussion of stratigraphy is presented later in this chapter, but is briefly described here. Within the midden deposit, the profile was characterized by very dark grayish brown sandy loam 30-40 cm (11.8-15.7 in) thick overlying a pale brown sandy loam extending to a depth of 50 cm (19.7 in) below surface, where a yellowish brown sandy clay B horizon was encountered.

A summary of the artifacts recovered from test excavations is presented in Table 7-1. The specific tool types recognized are included in tables presented later in the chapter along with the tools recovered during intensive excavations. For most of the site, the assemblage was typical of the majority of prehistoric sites located during the 1987 survey, consisting primarily of flakes and fire-cracked rock. Only Units 1, 3, 4, 6, and 21 along the northwestern quarter of the site yielded faunal remains suitable for subsistence studies. Ceramics were also recovered from this portion of the site. No artifacts were recovered from Units 2, 5, 16, and 20, which apparently fell outside the site limits. In addition, no artifacts were recovered from Units 11 and 12, but these units were located within the highly eroded portion of the slope where the A horizon was only 10 cm (3.9 in) deep. It is possible that this portion of the site was never used to a great extent, but it is also likely that the great level of natural disturbance removed any artifacts that may have been present.

Unit 21 merits extended discussion not only because it sampled a relatively deep deposit with some degree of discernible stratigraphy, but also because it yielded a cultural feature (Feature 1) and a human burial (Burial 1 in Feature 32). Relatively few artifacts were found in the upper three to four levels of this unit (within the dark sandy loam layer), but flakes, deer bone (including an awl), fire-cracked rock, charred nutshell, and a Gary dart point were concentrated within the upper 10 cm (3.9 in) of the brown layer in levels 5 and 6. This artifact scatter,

labeled Feature 1, consisted of three concentrations spread across the unit in a linear fashion from southwest to northeast (Figure 7-2). The artifact concentrations were distributed along the sloping contact between the two soil layers, which dipped slightly toward the north end of the unit (Figure 7-3). Thus, artifacts were concentrated in level 5 at the south end of the unit and in level 6 at the north end, even though the feature was only about 10 cm (3.9 in) thick. The artifacts apparently followed what must have been the ground surface at the time of deposition. This feature might represent a load of trash that was tossed downslope away from the occupation area, and was subsequently buried by the darker soil layer.

Fewer artifacts were recovered in Unit 21 below Feature 1 (Table 7-1), but at the base of level 8, a human cranium (Burial 1) was recovered at a depth of 82 cm (32.3 in) below surface. The cranium was then covered with plastic to await excavation during the mitigation phase. The cranium was surrounded by an arc of dark soil that was grave fill from a pit that extended about 12 cm (4.7 in) into the unit from the east wall. This grave pit was not numbered until the end of the mitigation phase, when it was labeled as Feature 32. Although it was not clearly visible in plan view, the grave pit for Burial 1 was discernible when the east profile was examined (Figure 7-3). The profile clearly showed that the grave pit intruded into the pale brown layer from the upper dark layer, which means that the body was placed in the grave at some point in time after the deposition of the darker layer. Therefore, Burial 1 post-dates Feature 1, despite the fact that it was found at a greater depth than Feature 1. Below Burial 1, levels 9 and 10 yielded some fairly large flakes, but artifact density was very low. Level 11 was very clayey and yielded only four flakes; the culturally sterile, heavy, gray clay with red mottling was encountered in this level at a depth of 108 cm (42.5 in).

The presence of arrow points and ceramics indicates that a Late Prehistoric period occupation was responsible for a major portion of the archaeological deposit at 41DT124. The high concentration of artifacts and the presence of a midden suggests that the deposit was the result of either repeated short-term occupations or a single continuous occupation such as one might expect to find associated with a small village or hamlet. The abundance of artifacts, excellent bone preservation, good potential for detecting features, abundance of datable materials, and the potential for the discovery of additional burials made this site attractive for additional investigation. These kinds of data are ideally suited for addressing the research questions related to subsistence, settlement systems, and chronology posed in the research design.

TABLE 7-1
Artifacts Recovered From Test Excavations

Unit	Level	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Ground Stone	Ceramic	Baked Clay ¹	Bone ¹	Shell ¹	Charcoal ¹	Burned Rock
1	1	—	—	—	—	—	—	—	—	1	—	—	6
3	1	—	1	—	16	—	—	11	42	73	25	11	35
4	1	—	—	—	1	—	—	—	—	—	—	—	—
6	1	—	—	—	38	—	—	1	25	—	—	—	19
7	1	—	1	—	24	—	—	2	5	—	—	—	M ²
8	1	—	1	—	27	—	—	—	—	—	—	—	7
9	1	—	—	—	7	—	—	2	—	—	—	1	—
10	1	—	—	—	9	—	—	—	—	—	—	—	—
13	1	—	—	—	—	—	—	7	—	—	—	—	6
14	1	—	—	—	—	—	—	2	—	—	—	—	2
15	1	—	—	—	2	—	—	—	—	—	—	—	—
17	1	—	—	—	2	—	—	—	—	—	—	—	—
18	1	—	—	—	3	—	—	—	—	—	—	—	2
21	1	—	1	2	28	—	—	—	3	14	—	2	11
	2	—	2	—	29	—	—	1	6	8	—	—	21
	3	—	3	2	45	1	1	3	6	10	—	1	39
	4	—	1	1	50	2	—	1	50	17	—	1	32
	5	—	5	—	94	—	—	1	20	46	—	8	82
	6	1	—	1	107	—	—	1	21	25	—	5	58
	7	2	3	—	101	—	—	2	9	32	—	32	48
	8	—	—	—	81	—	—	—	4	—	—	2	16
	9	—	3	—	47	—	—	—	1	—	—	—	14
	10	—	—	—	9	—	—	—	—	—	—	—	2
	11	—	—	—	4	—	—	—	—	—	—	—	—
Total		3	21	6	724	3	1	34	192	226	25	63	402

¹ Baked clay, bone, shell and charcoal are enumerated in grams; all other categories are enumerated in counts.

² Missing data.

EXCAVATION METHODOLOGY

Intensive investigation of the Doctors Creek site occurred in June and July of 1987. The field methodology and excavation strategy were designed to obtain a maximum amount of data from the midden deposit and from the deep deposit to the north of the midden. The relative lack of artifacts and eroded nature of the hill slope indicated that further investigation of that area would be unproductive, and the depth of the A horizon on the crest of the landform was so great that the chances for identifying intact features were practically nonexistent.

Therefore, all intensive excavation efforts were concentrated in a 30 x 30 m (98.4 x 98.4 ft) area encompassing the midden and the deep deposit on the northwest portion of the site.

METHODOLOGY

The selection of the sampling methodology used at the Doctors Creek site was guided by the criteria discussed in the research design. Briefly restated, the principal criteria included the ability of the methodology to locate significant deposits quickly, to permit accurate

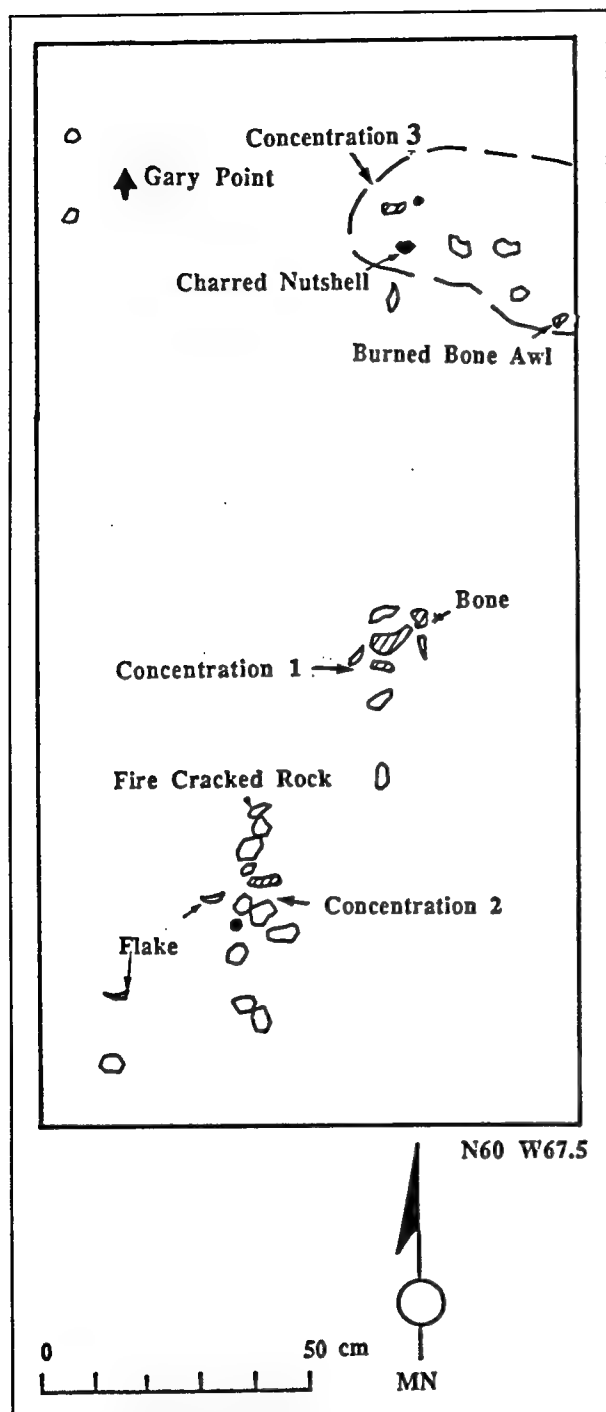


Figure 7-2. Plan view of Feature 1 in Unit 21 at 41DT124: the Doctors Creek site, at 50 cm (19.7 in) below surface.

spatial analysis of artifact and feature distributions, to recover datable remains necessary to assess the chronology of the deposit, and to recover floral and faunal remains required to understand subsistence patterns. In order to locate deposits of major interest, a magnetic

survey and systematic excavation program were conducted. The systematic approach to sampling permitted the use of the SYMAP program to generate artifact distribution maps of the study area. On the basis of these initial systematic excavations, block excavations were conducted within areas that offered the greatest potential for the recovery of datable materials and identifiable floral and faunal remains. This approach provided a means of rapidly assessing the composition of the study area so that effort could be directed toward the most productive portions of the deposit.

The matrix from most excavation units was water screened, including a fine screen sample taken from each level. Flotation samples were collected from all cultural features to recover carbonized floral remains, and radiocarbon samples were taken whenever possible to assess the chronological correlation of features and artifact types. As a result of these techniques, enough information was recovered to reconstruct many of the activities conducted at the site, identify the major periods of site occupation, and address the nutritional and health status of the population.

MAGNETIC SURVEY

Prior to the intensive excavations, a magnetic survey was conducted over a 20 x 30 m (65.6 x 98.4 ft) area across the northwest portion of the site. The survey was conducted by laying out two contiguous survey blocks, one measuring 10 x 10 m (32.8 x 32.8 ft), near the farm road and the other measuring 20 x 20 m (65.6 x 65.6 ft) to the north. The coordinates for the four corners encompassing the entire magnetic survey area were S0 E0, S30 E0, S0 E20, and S30 E20 (Figure 7-4).

A dual-bottle proton magnetometer was used to measure the total magnetic intensity at each measurement locality. With this instrument, both the search bottle and the reference bottle are operated from a single magnetometer, as opposed to other dual-bottle methods that employ two separate magnetometers. This new design eliminated fluctuations in readings due to slight differences affecting individual magnetometers. Readings were taken at 1 m (3.28 ft) intervals with the search bottle held ca. 30 cm (11.8 in) above the ground surface, oriented in an east-west direction. The reference bottle was situated ca. 20 m (65.6 ft) from the survey area, also in an east-west orientation. The number recorded for each locality represented the difference between the two bottles. For example, positive values indicated that the magnetic field at the search bottle was greater than that at the reference bottle. This method permitted control over the effects of diurnal variation in the earth's magnetic field.

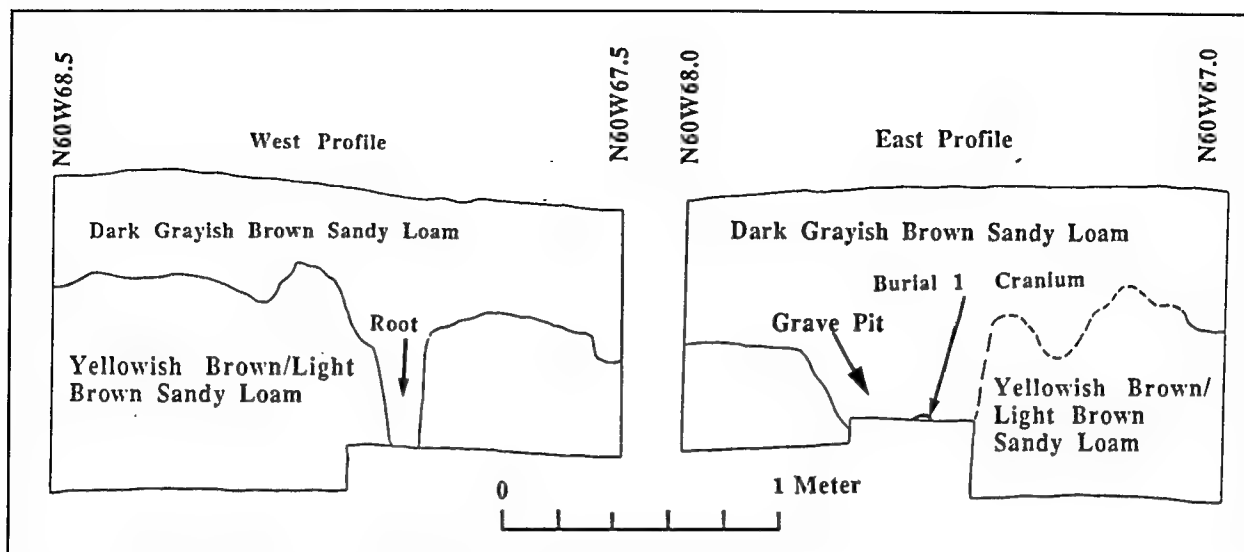


Figure 7-3. East profile of Unit 21 at the 41DT124: the Doctors Creek site.

SYSTEMATIC EXCAVATION

A systematic sampling approach was adopted so that spatial analysis could be conducted using the SYMAP program. Twenty 50 x 50 cm (19.7 x 19.7 in) units (Units 22-41) were laid out at 5 m intervals across the 20 x 20 m (65.6 x 65.6 ft) block falling between S10 and S30 (Figure 7-5). Analysis of the spacing of 50 x 50 cm (19.7 x 19.7 in) units at other sites in Texas indicated that the spatial patterns that were identified using closely spaced units (1.67 m [5.5 ft] intervals) could also be recognized using larger intervals. For example, at Bird Point Island, units excavated at 5 m (16.4 ft) intervals provided enough information to recognize important artifact patterning associated with structures (Martin and Bruseh 1987b:25). This broader spacing greatly reduced cost in terms of time and labor expended.

Units 36 and 41 were not excavated because they contained floodplain clay that appeared to be devoid of cultural material, similar to the matrix observed in Unit 5 that produced no artifacts. All other units were dug down to the clay B horizon in two levels; the first level consisted of the very dark grayish brown midden zone that was labeled Zone 1, and the second level, Zone 2, consisted of the light brown matrix beneath the midden. Using this technique, direct comparison among levels was impossible because the depth of each zone varied from unit to unit. Therefore, depth measurements were recorded for each zone during excavation to permit artifact densities to be calculated for the purposes of inter-unit comparison. All of the soil in Units 22 through 40 was dry screened through .25 in (6.4 mm) mesh.

Units 42-47 were 50 x 100 cm (19.7 x 39.4 in) units laid out at 10 m (32.8 ft) intervals in the 10 x 10 m (32.8 x 32.8 ft) block covering the deep deposit next to the floodplain. The larger unit size was selected to facilitate the deeper excavations required on this part of the site. In an effort to identify possible stratified deposits on this portion of the site, these units were excavated in arbitrary 10 cm (3.9 in) levels to provide a greater degree of vertical control. Units 46 and 47 were situated lower than the other units and fell within the Kaufman clay of the floodplain. They were dug down 50 cm (19.7 in) in one corner to determine whether or not cultural deposits were present beneath a lens of floodplain clay, but no change in the matrix was observed and no artifacts were found, so no further excavation was conducted. All soil from Unit 45 and soil from the upper levels of Units 42 through 44 were dry screened through .25 in (6.4 mm) mesh. The matrix from the lower levels in Units 42 through 44 was water screened through the same size mesh. The artifact recovery rate varied insignificantly between the two techniques.

Twelve additional 50 x 50 cm (19.7 x 19.7 in) units (Units 53-64) were excavated at 5 m (16.4 ft) intervals on the east side of the 20 x 30 m (65.6 x 98.4 ft) area that had been magnetically surveyed and systematically excavated. These additional units were deemed necessary to explore the entire extent of the midden deposit once it was observed that all units excavated along the E30 line contained slightly deeper midden deposits than did the units to the west. This fact suggested that the E30 line might represent the center of the midden and that substantial deposits might lie to the east. Unit 53 was

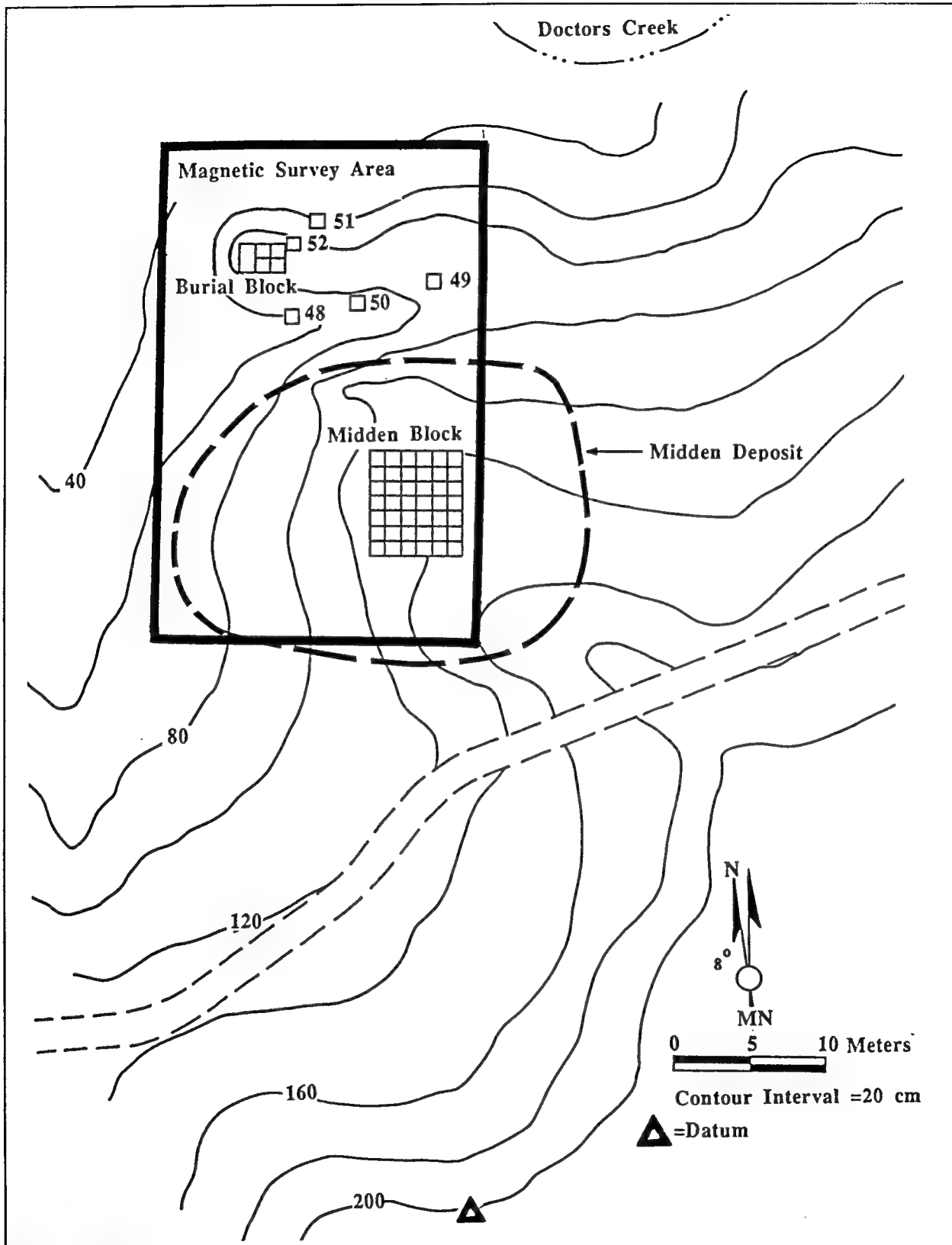


Figure 7-4. Map of the magnetic survey area at 41DT124: the Doctors Creek site.

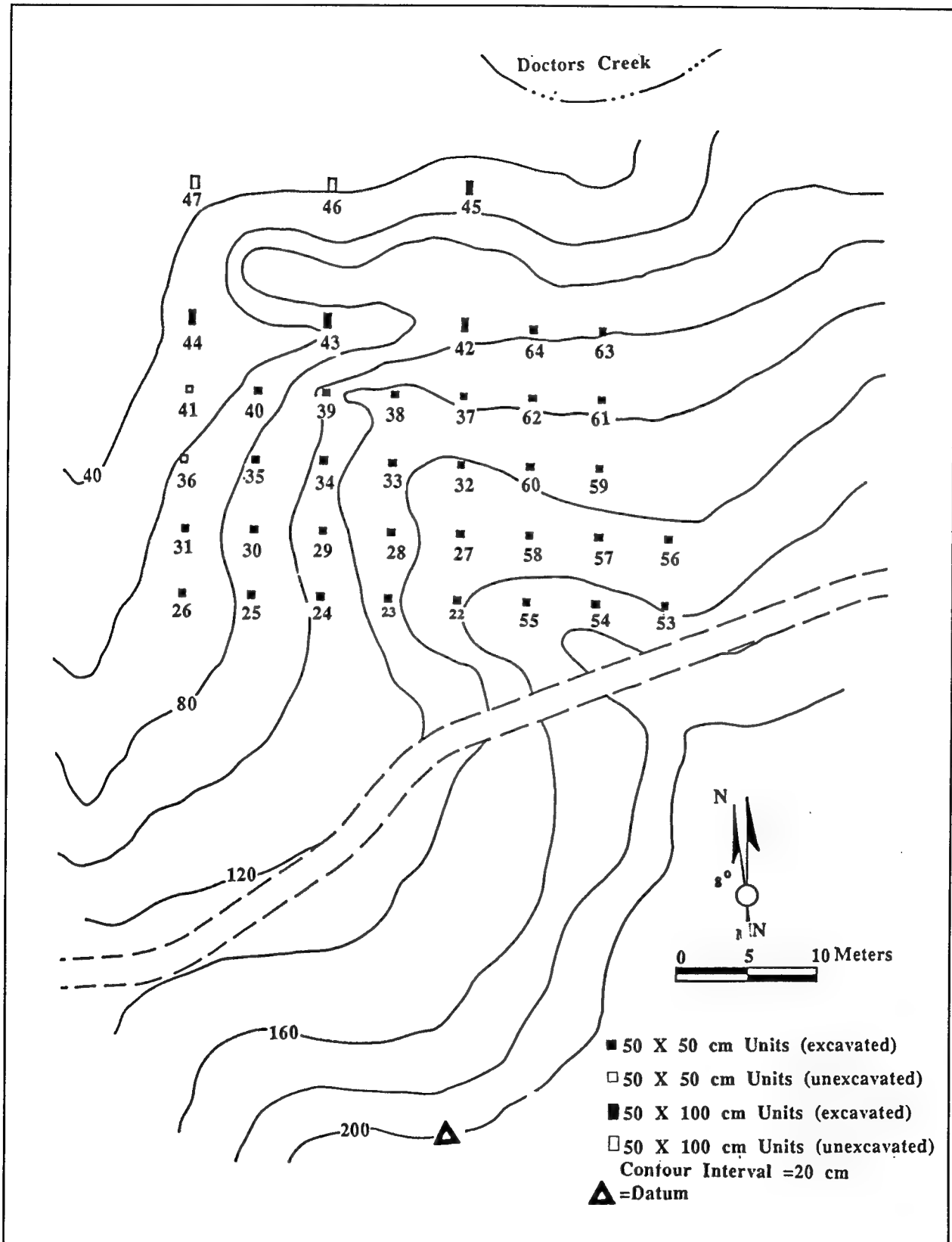


Figure 7-5. Location of initial excavation units at 41DT124: the Doctors Creek site.

shallow and proved to be culturally sterile, and Unit 56 yielded few artifacts. Both units were composed of yellowish brown sandy loam rather than the very dark grayish brown matrix found in the midden. Thus, the midden deposit appeared to be confined between the E0 and E40 lines.

Block Excavation

Two blocks were excavated within the northwestern portion of the site: the Burial Block and the Midden Block (Figure 7-6). Units excavated in both blocks measured 1 x 1 m (3.28 x 32.8 ft); within arbitrary 10 cm (3.9 in) intervals. Some block excavation units encompassed 50 x 50 cm (19.7 x 19.7 in) units that had been dug during the initial investigation of the site. A correction factor was calculated for these units so that accurate comparison among all units in each block could be made (see Results).

A mapping datum was established southeast of the Midden Block at S30 E20. Elevations and other mapping measurements were taken from this point until the permanent datum was established on the south side of the farm road before the mechanized scraping removed the stake set at S30 E20. Elevations were shot back and forth from one datum to the other to tie in readings taken from each point. In addition, ground surface elevations were taken on specific stakes each day to correct for daily variations in the height of the instrument and insure that accurate maps would be made.

The deep deposit containing Burial 1 was sampled by four units (Units 65-68) arranged in a 2 m (6.6 ft) square adjacent to the east wall of Unit 21 (Figure 7-6). This formed a 3 x 2 m (9.8 x 6.6 ft) block, labeled the Burial Block, which was intended to permit the recovery of Burial 1; while at the same time allowing a larger artifact sample to be collected from the stratified deposit. Units 65 and 66 were dug down 11 levels to 110 cm (43.3 in) below ground surface, but level 11 was sterile in both units, so Units 67 and 68 were only dug down 10 levels. No additional burials were encountered within this block.

The results of the systematic excavations indicated that the prime area for data recovery within the midden lay roughly between S20-S25 and E22-E30. An attempt was made to excavate as much of this area as possible within the time frame allotted for intensive excavations. First a block of contiguous 1 x 1 m (3.28 x 32.8 ft) units (the Midden Block) measuring 5 m (16.4 ft) east-west by 6 m (19.7 ft) north-south was laid out between S20-S25 and E13-E18. Unit numbers were assigned starting with Unit 69 in the southeast corner, and proceeding consecutively from east to west up to Unit 98 in the northwest corner (Figure 7-6). Later, this block was expanded 1 m (3.28 ft) to the south and the east. When the

block was expanded, numbering continued from east to west for southernmost units (Units 99-103), and from south to north for easternmost units (Units 104-110). Units were excavated down through the dark midden until the light brown matrix of Zone 2 was exposed and cultural features could be observed. In most cases Zone 2 was encountered 30 cm (11.8 in) below ground surface, so units were dug down three levels. However, the midden extended a little deeper in some units, especially those along the north wall of the block, so four levels were excavated in these units.

Cultural features were numbered consecutively, except for burials that received separate burial numbers. Once a feature was observed, a fresh surface was scraped with a trowel to define the feature boundaries and it was mapped in plan view. Then a cross section was excavated, and the profile was mapped and photographed. Two #10 buckets of fill were saved for flotation, and any remaining matrix was water screened through 6.4 mm (.25 in) mesh.

Backhoe Trenches

Eleven backhoe trenches were excavated at the site to allow a geomorphologist to examine the natural stratigraphy of the landform (Figure 7-7). Dr. C. Reid Ferring conducted the geomorphological analysis, and the results of his study are presented in Appendix E. Backhoe Trenches 1 through 4 were dug along the base of the northwest slope to examine the floodplain deposit and its contact with the terrace formation. Backhoe Trenches 8, 9, and 11 were dug along the base of the northeast slope to examine the same phenomena. Backhoe Trench 5 was dug to study the deep deposit; it extended from the Burial Block southeast through Unit 48 almost up to Unit 39. Backhoe Trench 6 was dug on the south side of the farm road to examine the terrace deposit upslope. Backhoe Trench 7 was a small, shallow trench dug on the crest of the terrace. Finally, Backhoe Trench 10 was a short trench dug from the southeast corner of the Midden Block toward the southeast to further examine the terrace stratigraphy. This was the only backhoe trench in which cultural features were observed; a posthole and a pit were found.

Mechanized Scraping

Once a systematic sample of artifacts had been collected and both excavation blocks had been completed, mechanized removal of the A horizon was conducted to expose cultural features that penetrated the B horizon. Mechanized scraping was conducted to the east, south, and west of the Midden Block in areas systematically sampled by 50 x 50 cm (19.7 x 19.7 in) units. These

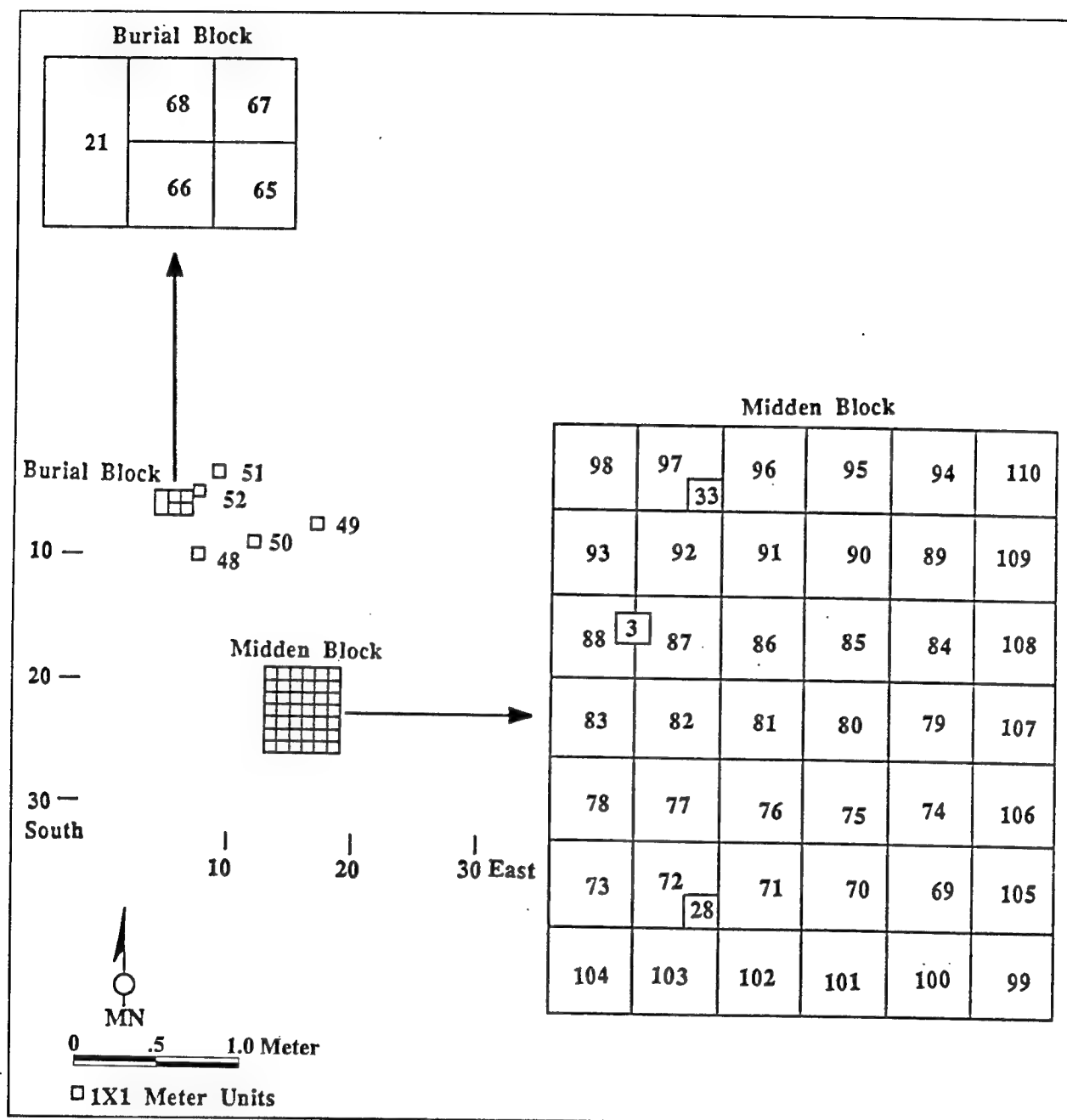


Figure 7-6. Map of block excavations at 41DT124: the Doctors Creek site.

systematic data were processed with the SYMAP program so that artifact concentrations could be mapped and correlated with the features observed after scraping was completed. A balk was left around the Midden Block to preserve the stratigraphy exposed in the block walls. The balk was about 3 m (9.8 ft) wide to the east, 1.5 m (4.9 ft) wide to the south, and 1.2 m (3.9 ft) wide to the west (see Figure 7-7).

To remove the A horizon, a medium bulldozer made several passes across the area, removing about 10-15 cm (3.9-5.9 in) of soil in each pass. The supervising archaeologist monitored the operation to prevent damage to features resulting from scraping too deeply. The bulldozer operator varied blade depth in response to signals from the archaeologist. When most of the A horizon had been removed, a tractor with an adjustable

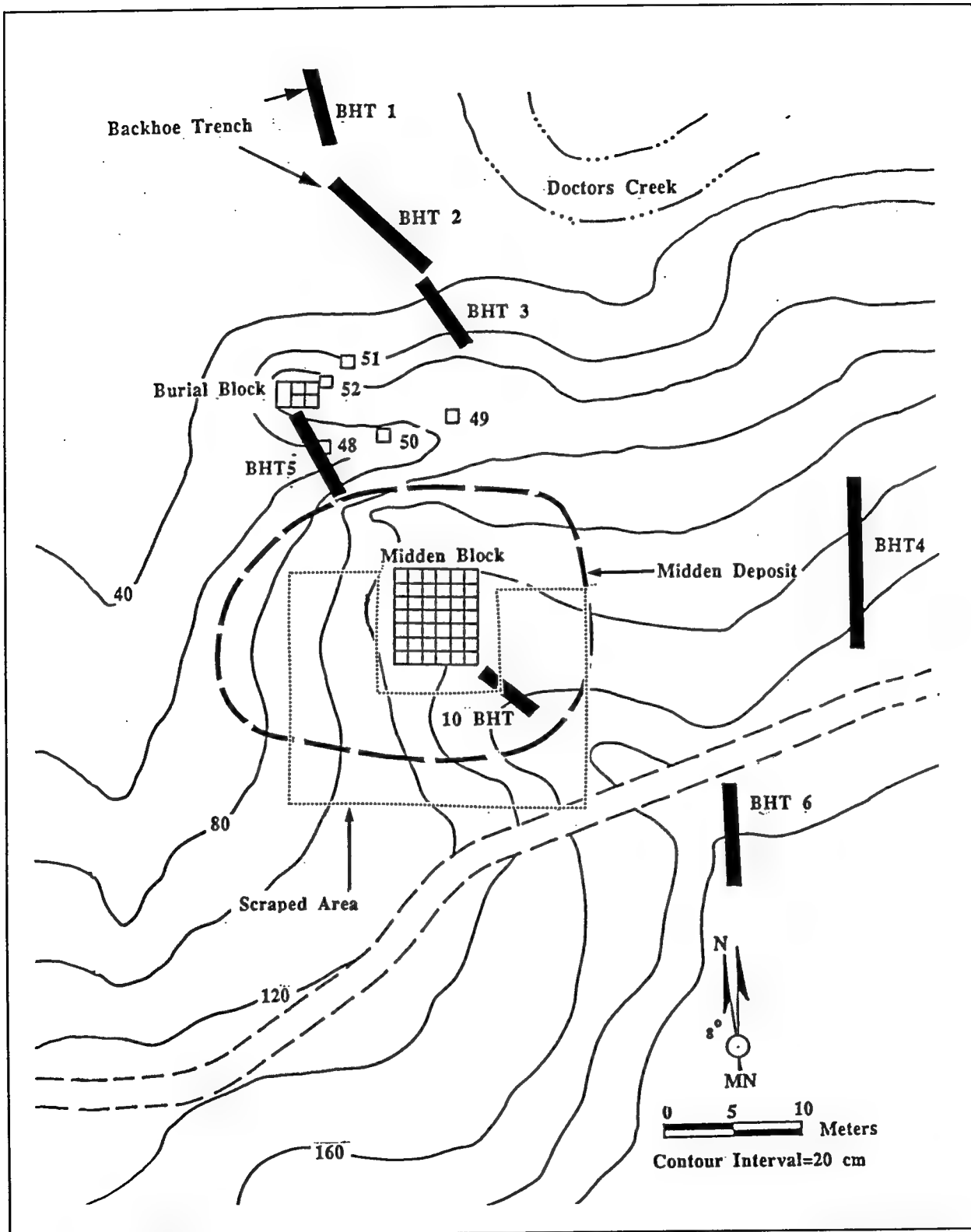


Figure 7-7. Map of backhoe trenches and mechanically scraped area at 41DT124: the Doctors Creek site. (Note: Trench #7 is off map to the southeast and trenches #8, #9, and #11 are off map to the northeast).

backblade capable of peeling away a few centimeters of soil at a time was used to scrape a smooth surface. The depth of the scraped surface below the original ground surface varied from ca. 30 cm (11.8 in) near the outer limits of the scraping operation, to about 40–45 cm (15.7–17.7 in) in the area bordering the balk left in place around the Midden Block.

After mechanized scraping was completed, crew members used sharpened hoes to scrape the surface clean enough to observe organic stains caused by cultural features. Finally, these stains were mapped, photographed, and excavated.

EXCAVATION RESULTS

During the course of testing and intensive excavations, fifty 50 x 50 cm (19.7 x 19.7 in) units, four 50 x 100 cm (19.7 x 39.4 in) units, fifty-one 1 x 1 m (3.28 x 32.8 ft) units, one 1 x 2 m (3.28 x 6.6 ft) unit, and 11 backhoe trenches were excavated at the Doctors Creek site. All but fourteen 50 x 50 cm (19.7 x 19.7 in) units and four backhoe trenches were excavated within the northwest portion of the site, where intensive excavation efforts were concentrated. In the remainder of this chapter, the results of the analysis are presented and used to interpret chronology and intrasite activities.

STRATIGRAPHY

The results of the geomorphological analysis of the Doctors Creek site indicate that the landform is a Pleistocene terrace. The terrace is nonaggrading except along the northern edge of the slope where alluviation from Doctors Creek has cloaked the terrace with a mantle of alluvial sediments.

The Midden Block stratigraphy is illustrated by the north and east profiles of the block (Figure 7-8). These profiles show that the very dark grayish brown (10YR3/2) anthropic soil (midden) gradually deepened from 30 cm (11.8 in) deep at the south end of the block to 40 cm (15.7 in) deep at the north end. Immediately beneath the midden was a layer of lighter brown (10YR4/2 to 4/3) sandy loam that extended down to ca. 50 cm (19.7 in) below surface. At that depth, the pale brown to yellowish brown (10YR6/3 to 6/4) sandy clay B horizon was encountered. The contact between the midden and the underlying brown soil layer was very sharp, whereas the contact between the brown layer and the yellowish brown sandy clay was more diffuse.

Along the eroded portions of the slope, stratigraphy consisted of a grayish brown sandy loam A horizon 10–20 cm (3.9–7.9 in) thick on top of a reddish brown sandy clay B horizon. A few patches were present along the slope in

which the entire A horizon had been removed, leaving the B horizon exposed. On top of the landform, which had suffered little erosion, the A horizon was comprised of a dark brown organic layer about 10 cm (3.9 in) thick covering a yellowish brown silty sand extending down as deep as 70 cm (27.56 in) below surface. A gray mottled clay B horizon was encountered beneath the yellowish brown layer. Iron or manganese concretions were noted in the clay layer in Unit 13, but they were not observed in the other units. As previously stated, the deep deposit adjacent to the floodplain consisted of a dark grayish brown (10YR3/2) sandy loam ca. 50 cm (19.7 in) deep, overlying a brown (10YR4/3) silty sand extending from 50 cm (19.7 in) below surface down to 108 cm (42.5 in) below surface where a gray clay (10YR5/2) with orange mottling was encountered.

The vertical distribution of artifacts also has important implications for site stratigraphy. This topic is addressed later in this chapter, following the presentation of the feature and artifact data, because these data are necessary for interpreting the stratigraphy.

ARTIFACT DESCRIPTIONS

A summary of the artifacts recovered during the 1987 intensive excavations phase at the Doctors Creek site by unit and level is on file at SMU. All identifiable tools and ceramic sherds recovered from the site during both the testing and the intensive excavations phases are presented in tabular form in this report.

Dart point types and arrow point types are listed in Table 7-2. Other identifiable stone tools are listed in Table 7-3. Ceramic sherds are described by Maynard Cliff in the section following the discussion of stone tools. Identifiable bone tools are described by Bonnie Yates and included in the tables of identifiable faunal elements in Appendix D. The proveniences used below indicate the unit number then the level separated by a decimal (i.e., 75.1).

Lithic Artifacts

Arrow Points (Figure 7-9)

Agee-like (1 specimen). This specimen exhibits a deep U-shaped corner notch on one side (the other side was broken), recurved lateral edges, and a concave base. Provenience: 75.1. Material: Big Fork chert.

Alba (14 specimens). These specimens have rectangular stems with straight to slightly convex bases. They exhibit triangular blades with prominent right-angled shoulders. However, many specimens do not have

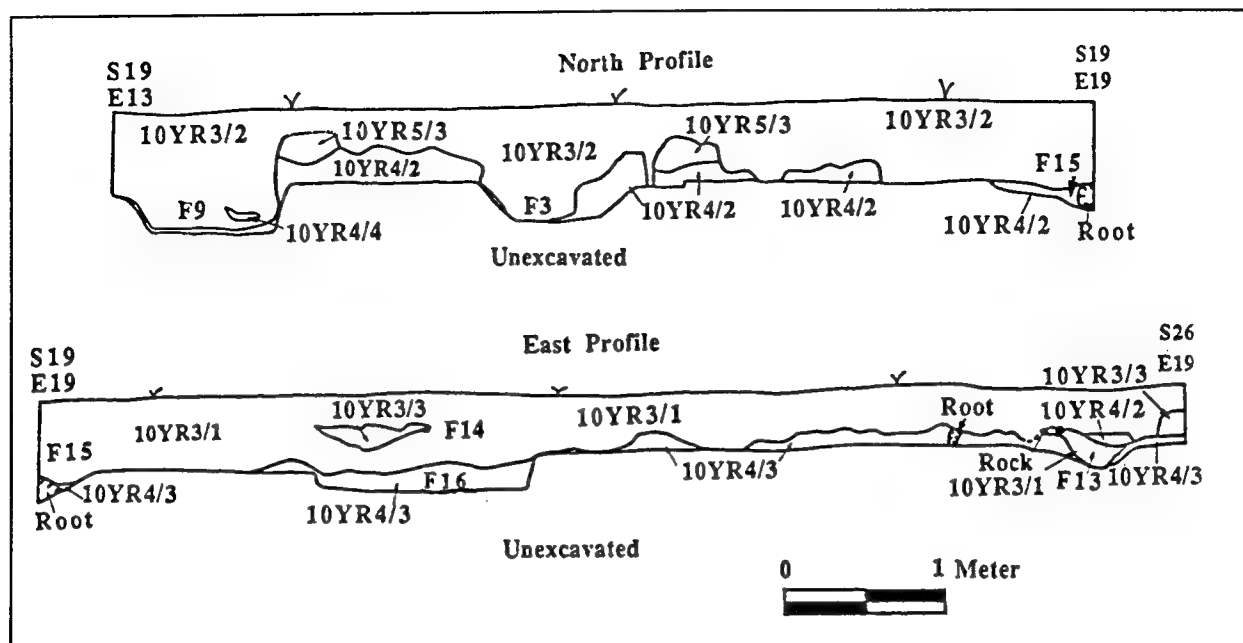


Figure 7-8. Midden block profiles at 41DT124: the Doctors Creek site.

the shape of classic Alba points and are best described as Alba-like. These specimens exhibit slightly expanding stems and blunt shoulders rather than sharp barbs. Materials: chert (1), quartzite (13). Proveniences: 65.2, 67.2, 74.1, 74.2 (2), 76.3, 77.1, 80.1, 82.5, 88.1, 89.1, 100.2, 110.3, Feature 4.

Bonham (2 specimens). These specimens have straight edges and narrow, rectangular stems. Materials: quartzite (2). Proveniences: 97.1, 101.1.

Catahoula (5 specimens). These specimens have concave blade edges, full barbs with squared ends, and expanding stems with convex bases. Materials: quartzite (5). Proveniences: 40.1, 77.2, 88.1, 91.2, 92.1.

Colbert (1 specimen). This specimen has straight blade edges, prominent shoulders with barbs, and an expanding stem with a rounded, bulbar base. Material: quartzite. Provenience: Feature 26.

Friley-like (12 specimens). These specimens have expanding stems with recurved barbs. Many also exhibit serrated blades. Material: quartzite (12). Proveniences: 28.1, 48.2, 65.1, 65.4, 74.3, 76.1, 77.7, 82.2, 108.2 (2), Feature 4, Feature 30.

Hayes (1 specimen). This specimen has a triangular blade with concave edges and a bulbous stem with a rounded base. Material: chert. Provenience: 73.1.

Scallorn (7 specimens). These specimens are corner notched, with triangular blades and expanding stems. They have prominent right-angled shoulders or downward pointing barbs and straight to concave bases. Materials: quartzite (7). Proveniences: 66.2, 66.3, 66.5, 73.1, 99.1, 105.3, 110.1.

Steiner (33 specimens). These specimens have deeply serrated triangular blades, straight to slightly expanding stems, and straight to convex bases. Materials: quartzite (33). Proveniences: 22.1 (2), 30.1, 56.1, 57.1, 70.4, 74.2, 74.3, 75.1, 76.1 (2), 77.1, 77.5 (Feature 5), 81.4 (Feature 5), 83.3, 88.3, 90.1, 91.1, 93.1, 93.2, 95.4, 96.4, 98.3 (2), 98.4 (Feature 9), 99.3, 100.2, 102.2, 103.1, 105.1, 106.1, Feature 2, Feature 4.

Untyped, Contracting Stem (24 specimens). These specimens are highly variable, but some are deeply serrated and look like Steiner points except for their contracting stems. Materials: quartzite (24). Proveniences: 25.1, 27.1, 28.1 (2), 48.2, 48.3, 74.1, 74.3 (2), 75.1, 75.2, 76.3, 81.4, 86.1, 89.1, 93.1, 94.2, 103.1, 104.1, 107.3, 108.3, 110.2, Feature 2, Feature 26.

Untyped, Straight Stem (12 specimens). These specimens are also highly variable. Some have squared bases like Alba points, but exhibit short blades without prominent shoulders or barbs. Others are serrated and look somewhat like Steiner points. Materials: quartzite

TABLE 7-2

Projectile Point Types By Area

Projectile Point Types	General Midden ¹	Midden Block ²	Deep Deposit ³	Total
<i>Arrow Points</i>				
Agee-like	—	1	—	1
Alba-like	—	12	2	14
Bonham	—	2	—	2
Catahoula	1	4	—	5
Colbert	1	—	—	1
Friley-like	1	8	3	12
Hayes	—	1	—	1
Scallorn	—	4	3	7
Steiner	5	28	—	33
Untyped	—	—	—	—
Contracting Stem	4	18	2	24
Untyped	—	—	—	—
Straight Stem	1	11	—	12
Untyped	—	—	—	—
Expanding Stem	1	21	3	25
Untyped	—	—	—	—
Bulbar Stem	1	4	—	5
Fragments ⁴	6	56	5	67
Subtotal	21	170	18	209
<i>Dart Points⁵</i>				
Elam	—	1	1	2
Gary	2	5	7	14
Untyped	—	—	—	—
Contracting Stem	1	1	3	5
Untyped	—	—	—	—
Straight Stem	—	1	1	2
Fragments ⁴	6	10	5	21
Subtotal	9	18	17	44
Total	30	188	35	111

¹ 50 x 50 cm (19.7 x 19.7 in) Units 1, 2, 4, 22-41, and 52-64.² 50 x 50 cm (19.7 x 19.7 in) Unit 3 and 1 x 1 m (3.28 x 32.8 ft) Units 69-110.³ 1 x 2 m (3.28 x 6.6 ft) Unit 21, 1 x 0.5 m Units 42-45, and 1 x 1 m (3.28 x 32.8 ft) Units 48-51 and 65-58.⁴ Includes all tip, medial, and base fragments listed under Bifaces in Table 7-1 in addition to indeterminate fragments.⁵ The northeast part of the site contained an untyped straight stem dart point.

TABLE 7-3

Lithic Artifacts By Area

Lithic Artifact Type	General Midden ¹	Midden Block ²	Deep Deposit ³
<i>Projectile Points</i>			
Arrows	9	110	13
Darts	1	8	11
<i>Finished Bifaces</i>			
Drill/Awl	—	2	—
Bifacial Knife	1	2	1
Bifacial Scraper	—	4	—
<i>Aborted Bifaces</i>			
Early Stage	1	25	14
Late Stage	4	15	9
Arrow Point Preform	1	6	1
Dart Point Preform	1	2	3
Bifacially Retouched	4	24	2
<i>Biface Fragments</i>			
Arrow tip	1	35	4
Arrow Medial	1	2	—
Arrow Base	1	1	1
Arrow Indeterminate	3	18	—
Dart tip	3	7	—
Dart Medial	—	—	1
Dart Base	3	3	3
Dart Indeterminate	—	—	1
Biface Reshaping Flake	—	—	2
Indeterminate Fragments	8	45	12
<i>Steeply Chipped Unifaces</i>			
Endscraper	—	9	2
Sidescraper	1	14	—
<i>Marginally Modified Unifaces</i>			
Graver	1	4	—
Denticulate	—	4	—
Concave/Notch	2	59	9
Straight-Convex	14	173	31
Combination	—	6	1
<i>Cores</i>			
Tested Nodule	5	4	1
Multifaceted	3	—	—
Bifacial	—	1	—
Prepared Platform	—	1	—
Fragments	2	80	6
<i>Ground, Pecked, & Battered Stone</i>			
Grinding Slab	1	—	—
Total	71	664	128

¹ 50 x 50 cm (19.7 x 19.7 in) Units 1, 2, 4, 22-41, and 52-64.² 50 x 50 cm (19.7 x 19.7 in) Unit 3 and 1 x 1 m (3.28 x 32.8 ft) Units 69-110.³ 1 x 2 m (3.28 x 6.6 ft) Unit 21, 1 x 0.5 m Units 42-45, and 1 x 1 m (3.28 x 32.8 ft) Units 48-51 and 65-58. Also, the northeast part of the site contained one dart point and two aborted bifaces (early stage).

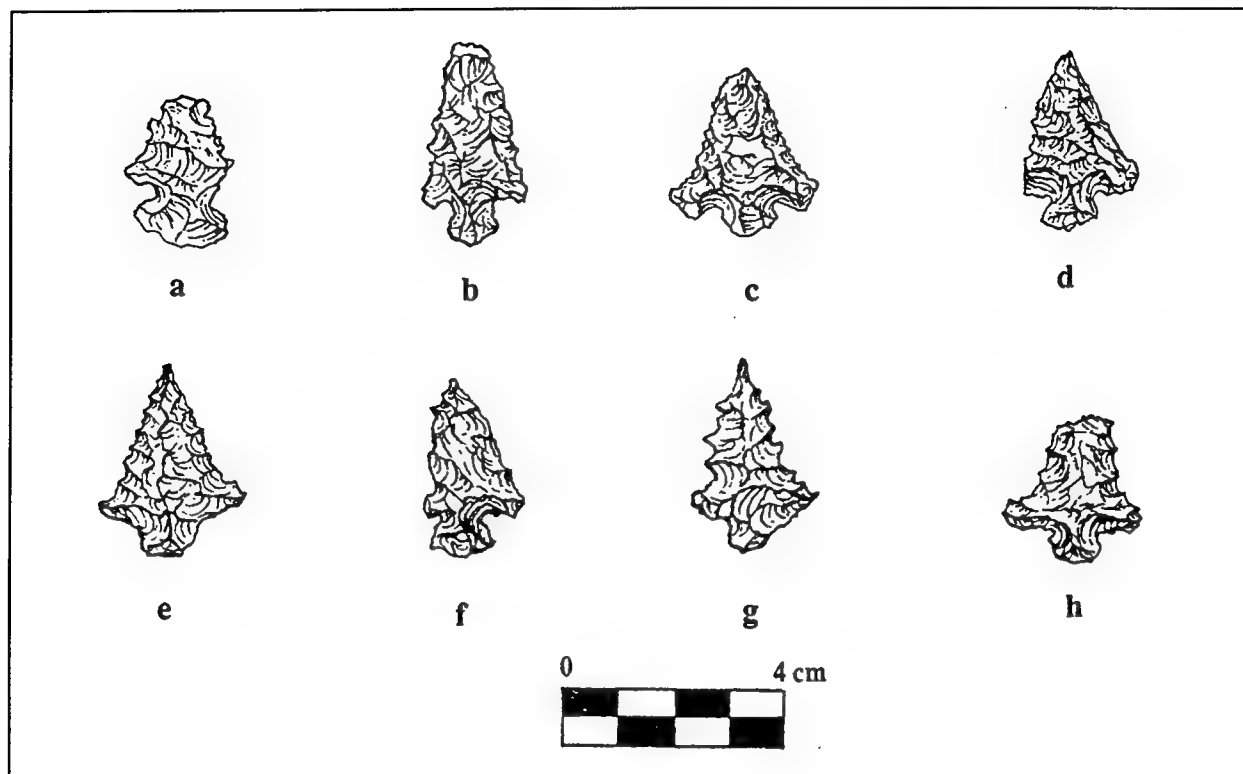


Figure 7-9. Arrow points from 41DT124: the Doctors Creek site; (a) Agee-like, (b) Bonham, (c) Catahoula, (d) Colbert, (e) Friley-like, (f) Scallorn, (g) Steiner, and (h) Untyped.

(12). Proveniences: 28.1, 69.1, 69.3, 77.5 (Feature 5), 83.1, 84.2, 92.1, 95.4, 97.2, 107.2, 109.2, Feature 2.

Untyped, Expanding Stem (25 specimens). These specimens are somewhat variable, but many exhibit broad corner notching which creates an expanded stem with a convex base and large barbs. One specimen has a serrated blade. Materials: chert (1), quartzite (24). Proveniences: 44.2, 48.1 (2), 52.1, 72.2, 80.1, 82.5 (Feature 5), 84.3, 85.1, 88.3, 89.2, 92.1, 95.1, 95.4 (2), 96.4, 97.4, 99.1 (2), 100.2 (2), 101.2, 110.3, Feature 4, Feature 32.

Untyped, Bulbar Stem (5 specimens). Some of these specimens have triangular blades similar to Alba or Bonham types, but all exhibit expanded bulbar stems. Materials: quartzite (5). Proveniences: 34.2, 82.1, 95.2, 104.3, 108.2.

Indeterminate Fragments (21 specimens). These are fragmentary arrow points which do not clearly fall into the tip, medial, or base categories presented under the listing for biface fragments. Materials: quartzite (21). Proveniences: 22.1, 32.1, 62.1, 82.1, 84.1 (2), 84.2, 85.1, 86.1, 89.1, 97.1, 98.4 (2), 101.2, 102.2, 103.1, 105.1, 105.2, 108.1, 109.2 (2).

Dart Points (Figure 7-10)

Elam (2 specimens). These specimens are short with weakly developed shoulders, rectangular stems, and slightly convex bases. Materials: quartzite (2). Proveniences: 103.1, Feature 29.

Gary, Regular Variety (14 specimens). These specimens have triangular blades, contracting stems, and most have rounded bases. Rather than being rounded, some bases contract down to a point. Blade morphology varies with shoulders ranging from weakly developed to prominent. One specimen found in Feature 5 exhibits light grinding along its stem. Materials: quartzite (14). Proveniences: Surface (2), 21.6, 21.7, 44.5, 66.8, 67.7 (2), 68.7, 77.6 (Feature 5), 82.2, 87.5, 89.1 92.1.

Untyped, Contracting Stem (5 specimens). These vary dramatically in morphology. Some points, such as the one illustrated, are very similar to Gary points except that they exhibit straight, rather than contracting, stems. Materials: quartzite (5). Proveniences: 29.2, 66.6, 67.7, 68.6, 81.4.

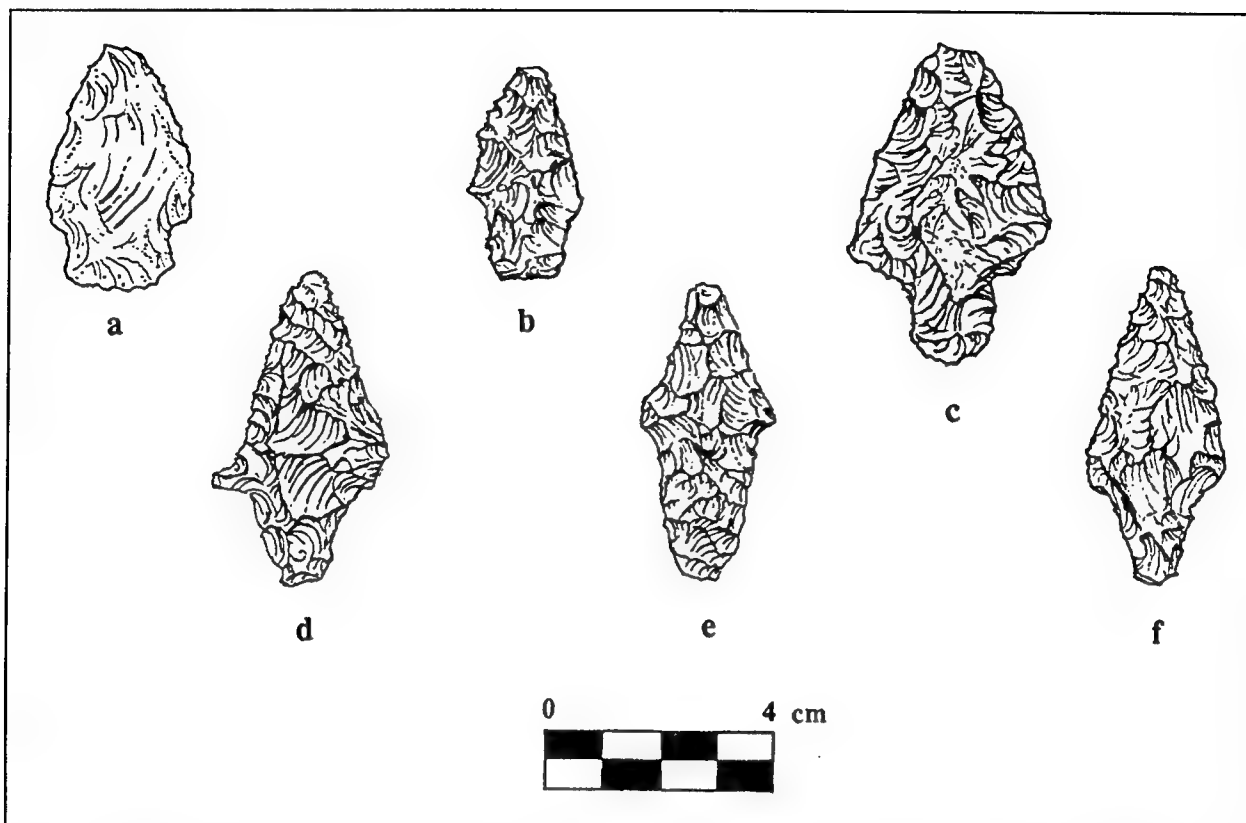


Figure 7-10. Dart points from 41DT124: the Doctors Creek site; (a) Elam, (b) Contracting stem, (c) Straight stem, and (d-f) Gary-like.

Untyped, Straight Stem (2 specimens). One specimen has a triangular blade with prominent shoulders and a narrow straight stem with a slightly convex base. The other specimen has well defined barbs which extend downward almost as far as the bottom of the stem. It is somewhat similar to Archaic period barbed points such as Calf Creek points. It is also reminiscent of the barbs exhibited by Marshall points, except that Marshall points have expanding stems. Material: quartzite (2). Proveniences: 10.1, 66.6.

Indeterminate Fragment (1 specimen). Material: quartzite. Provenience: 67.7.

Finished Bifaces

Drill/Awl (2 specimens). These specimens are identified by their long, very narrow and thin, bifacially worked blades. One specimen had the tip broken off. The base of the complete specimen was the unworked proximal portion of a flake, whereas the base of the other exhibited some bifacial retouch. Material: quartzite (2).

Proveniences: 90.3, 108.3.

Knife (4 specimens). These specimens have at least one straight blade edge formed by fine, secondary retouch. The range of outline morphology is difficult to assess since most of these tools are broken. One broken biface made from chert appears to have been part of a very small knife. The only complete specimen is leaf-shaped and has basal notches somewhat similar to a corner-tang biface. Materials: chert (1), quartzite (3). Proveniences: 21.9, 52.1, 87.1, 103.1.

Bifacial Scraper (4 specimens). These specimens have chipped bits similar to endscrapers, except that the flaking is bifacial, rather than unifacial. The working edges of two specimens exhibit wear due to grinding or crushing, suggesting that they were used for scraping or chiseling. Two broken specimens have sharp edges without definite signs of wear. It is possible that they are broken preforms. Materials: quartzite (4). Proveniences: 102.2, 102.3, Feature 7, Feature 14.

Aborted Bifaces

Early Stage (42 specimens). These are thick specimens with highly sinuous edges that appear to represent aborted attempts at the bifacial reduction of cobbles or large, thick, primary flakes. Some specimens exhibit cortex. Materials: quartzite (42). Proveniences: Table 7-4.

Late Stage (28 specimens). These specimens have been bifacially thinned to a greater extent than the early stage bifaces, as evidenced by less sinuous edges. However, no evidence of fine secondary retouch is present. Materials: quartzite (28). Proveniences: See Table 7-4.

Arrow Point Preforms (8 specimens). These specimens are bifacially retouched flakes that are subtriangular in outline. They lack basal modification for hafting. Materials: Red River chert gravels (1) and quartzite (7). Proveniences: 64.1, 67.4, 71.2, 75.3, 76.1, 92.1, 93.1, and Feature 8.

Dart Point Preforms (3 specimens). These specimens exhibit the rough outlines of contracting stem dart points, including some basal modification for hafting, but do not exhibit fine secondary retouch. Materials: quartzite (3). Proveniences: 68.7, 87.1, and Feature 32.

Bifacially Worked Pieces (31 specimens). These specimens exhibit small areas of crude bifacial retouch. They may have been used as tools, or they may have been aborted bifaces, but they can not clearly be assigned to any of the preceding categories. Materials: chert (1), quartzite (30). Proveniences: See Table 7-4.

Biface Fragments

Possible Projectile Point Tip Fragments (50 specimens). These are pointed distal fragments of projectile points. Of the 49 specimens recovered, 10 are dart point size and 40 are arrow point size. Materials: quartzite (50). Proveniences: See Table 7-4.

Possible Projectile Point Base Fragments (12 specimens). These are the proximal ends of stemmed projectile points. Nine are dart point size and three are arrow point size. Materials: quartzite (12). Proveniences: 21.7, 37.1, 50.1, 62.2, 66.8, 77.1, 94.3, 101.1, 104.1 (Dart); 35.1, 65.1, 89.3 (Arrow).

Possible Projectile Point Medial Fragments (4 specimens). One of these specimens is a dart size medial

blade section and three are arrow point size. Materials: quartzite (43). Proveniences: 48.1 (Dart); 29.2, 96.2, 98.2 (Arrow).

Biface Resharpening Flake (2 specimens). These specimens are flakes removed from bifacial tools, which were presumably struck from the bifacial tools to create a sharp working edge. The distal end of each flake exhibits bifacial retouch which has been dulled from use. Materials: quartzite (2). Proveniences: 21.1, 65.8.

Indeterminate Fragments (65 specimens). These specimens exhibit very small areas of crude bifacial retouch, and cannot be assigned to any of the preceding categories. Materials: chert (2), silicified wood (2), quartzite (61). Proveniences: see Table 7-4.

Steeply Chipped Unifaces

Endscraper (11 specimens). These are thick flakes exhibiting steep unifacial retouch along the distal or proximal ends. Some specimens also exhibit retouch along their sides. Materials: quartzite (11). Proveniences: 68.7, 68.8, 80.2, 81.1, 93.1, 95.2, 98.4, 101.3, 107.1, 110.3, Feature 5.

Sidescraper (15 specimens). These are thick flakes which had steep unifacial retouch along one or more edges. Materials: quartzite (15). Proveniences: 40.2, 86.1, 87.3, 94.1, 95.3, 97.1 (2) 101.1, 103.2, 104.1, 104.2, 107.3, 108.2, Feature 2, Feature 15.

Marginally Modified Unifaces

Graver (5 specimens). These are small thin flakes with pointed tips resulting from retouch. Materials: chert (1), quartzite (4). Proveniences: 60.1, 79.1, 84.2, 88.1, 95.3.

Denticulate (4 specimens). These are flakes exhibiting retouch along one lateral edge such that three or more regularly spaced, pointed tips are present. Materials: quartzite (4). Proveniences: 79.3, 83.1, 85.3, Feature 3.

Concave Working Edge or Notch (70 specimens). Most of these specimens have been retouched such that one or more concave notches are present. Some specimens exhibit moderately concave working edges instead of notches. Materials: quartzite (70). Proveniences: see Table 7-4.

TABLE 7-4

Proveniences For Certain Lithic Tool Categories Recovered¹

Unit Level (Specimens)	Unit Level (Specimens)	Unit Level (Specimens)	Unit Level (Specimens)	Unit Level (Specimens)	Unit Level (Specimens)	Unit Level (Specimens)	Unit Level (Specimens)	Unit Level (Specimens)	Unit Level
<i>Aborted Bifaces, Early Stage</i>									
7.1	8.1	21.5	21.7	21.9	29.2	44.6	48.4	65.5(2)	—
66.8	67.6	67.8	68.5	68.7(2)	72.1	74.1	74.2	80.1	—
81.1(2)	81.2	89.2	91.1	91.3	94.2(4)	96.2	98.1	98.4	—
103.1	103.3	105.2	108.2(3)	108.3	109.1	—	—	—	—
<i>Aborted Bifaces, Late Stage</i>									
21.5	21.7	24.2	25.2	32.2	44.6	48.1(3)	48.3	67.7	73.3
75.2	75.1	77.5	80.1	81.3	82.2	83.1	84.2(2)	89.1	90.3
91.1	95.2	102.1	—	—	—	—	—	—	—
<i>Bifacially Worked Pieces</i>									
25.2	27.1	31.2	60.1	67.3(2)	77.1	80.1	80.2	86.1	87.1
89.2(2)	89.	90.1(2)	92.2	94.1	95.1	96.2	98.1	99.2	—
102.2	103.1(2)	104.3	106.1	107.2(2)	109.3	—	—	—	—
<i>Possible Arrow Point Tips</i>									
35.1	44.1	48.4(2)	50.1	70.2	71.2(3)	72.1(2)	75.3	76.3	77.4
78.2	79.1	80.1	80.3	82.2(2)	83.1	84.1	85.1	88.3	89.3
93.1	94.3(2)	95.3	96.3	98.4	99.	100.2	103.2	105.3	—
106.1	107.1	107.3	108.3	109.4	—	—	—	—	—
<i>Possible Dart Point Tips</i>									
39.1	58.1	82.1	89.3	96.4	103.3	105.1(2)	106.1	110.2	—
<i>Indeterminate Biface Fragments</i>									
3.12	1.2(2)	21.3(3)	21.4	21.7	21.9	22.1	23.2	24.2(2)	—
25.2	23.2	33.1	48.2(2)	66.7	67.7	72.2	73.1(2)	74.2	—
76.2(2)	77.6	79.1(2)	79.2(2)	81.3(2)	83.2	85.1	86.1	87.1	—
89.3	90.1	91.1	91.2(2)	92.2	93.1	94.2	95.1	98.2	—
98.3	99.1	101.1(2)	103.1(3)	105.1(2)	106.3	108.3	109.3	109.4	—
F2.(3) ²	F15.	F20.	—	—	—	—	—	—	—
<i>Concave Working Edge or Notch</i>									
21.1	25.1	34.1	44.1	48.1(2)	50.1	58.1	66.7	66.8	67.6
67.7	69.2	70.3	72.2	74.1	74.3	75.3	76.1	—	—
77.5(2)	77.6	78.2(4)	79.1	79.2	80.3	81.1	84.2(2)	87.1(2)	—
88.1(2)	90.1	91.1	91.3	92.1	92.2	93.1(3)	93.3(2)	94.2	—
94.2	94.3(4)	95.2(2)	95.4	96.4(2)	97.1	98.1	98.2	98.4	—
99.2	100.2	105.1	105.2	107.2 (2)	107.3	109.2	F2. (2)	F3.	F4.
F5.	F16.	—	—	—	—	—	—	—	—

Table 7-4 (cont.)

Unit Level (Specimens)	Unit Level (Specimens)	Unit Level (Specimens)	Unit Level (Specimens)	Unit Level (Specimens)	Unit Level (Specimens)	Unit Level (Specimens)	Unit Level (Specimens)	Unit Level (Specimens)	Unit Level
<i>Straight to Convex Working Edge</i>									
21.1	21.3(2)	21.4	21.6	23.1	24.2(2)	28.2	29.2	32.1	—
34.2	37.1	38.1(3)	39.2	40.2(2)	48.1(2)	48.2(3)	48.4(2)	48.5(2)	—
58.2	59.1	65.1	65.3	65.5(2)	65.8	65.11	66.7	67.2	—
67.5	67.7	67.8(2)	68.2	68.6	68.7(2)	68.8	69.3	70.1(2)	—
70.3(2)	71.1	72.1	73.1(3)	73.3	74.1	74.3(2)	75.1	75.2(5)	—
75.3	76.1(2)	76.2	77.2(2)	77.5	79.1(3)	79.2(2)	79.3	80.2(2)	—
80.3	81.2(3)	81.3(2)	82.1(2)	82.5(3)	83.1(2)	83.2(5)	83.3	84.2(2)	—
85.1	85.3(2)	86.1	86.3	87.1(2)	88.1	89.1(2)	89.4(2)	90.1	—
90.2(2)	90.3(2)	91.1(2)	91.1(2)	91.3(4)	92.2(3)	93.1(3)	93.2(2)	94.1	—
94.2(4)	94.3(5)	95.1(2)	95.2	95.3(2)	96.3(2)	98.2(3)	98.3(3)	98.4	—
99.2	100.2	101.1(2)	102.1	103.1(2)	103.2	104.2	105.1(2)	105.2(2)	—
106.1	106.2(4)	106.1	106.2(4)	106.3	108.2(3)	108.3(2)	109.1(2)	109.2(2)	—
109.4	110.1	110.2	110.3	110.4	F2. (5)	F3. (3)	F5. (2)	F9. (4)	—
F13.	F14.	F15.	—	—	—	—	—	—	—
<i>Core Fragments</i>									
4.3	22.1	23.1	65.4	65.5	66.8(2)	67.8	68.6	69.1	—
70.3	71.3	75.2(2)	76.1	77.1	77.4	78.3	79.2	81.2	—
82.3	83.2	84.1	84.2(2)	84.3	86.1	86.2(3)	87.2	88.1	—
89.4	90.1	90.3	91.1(3)	91.2	92.1	92.3	93.1	93.3(3)	—
94.3(6)	95.1	98.4(2)	101.1	103.2	105.2(2)	105.3(2)	106.1	106.2	—
107.2	108.1(3)	108.3	109.2	110.1(2)	110.2	F2. (5)	F3.	F4. (3)	—
F5. (3)	F9. (3)	—	—	—	—	—	—	—	—

¹ Entries are read as Unit. Level(number of specimens other than 1).

² F#. indicates a specific Feature. Features have no level distinctions; however, the number of specimens is read similarly to Unit. Level (#).

Straight to Convex Working Edge (218 specimens). These specimens consist of flakes and broken flakes with minimal retouch flake scars along one edge. Regularly patterned flake scars are visible on most specimens, but many exhibit random flake scars in addition to small areas of regular retouch. Flakes in the latter group look similar to flakes which have sustained edge damage as a result of post-depositional trampling (cf. Gifford-Gonzalez et al. 1985:815). Materials: quartzite (218). Proveniences: see Table 7-4.

Combination Tool (7 specimens). These specimens have been retouched such that one or more edges have concave notches and other edges had straight to convex

working edges. Materials: quartzite (7). Proveniences: 67.5, 80.1, 84.2, 105.2, 109.4, Feature 2 (2).

Fragmentary (9 specimens). These specimens are unidentifiable fragments, except for one which is a flake struck from a scraper. Materials: quartzite (9). Proveniences: 22.1, 69.2 (2), 76.3, 79.1, 90.2, 94.3, 96.3, 98.2.

Cores

Split or Tested Nodules (10 specimens). These are primarily broken cobbles with no evidence of any attempt to further reduce the core. Material: quartzite (10).

Proveniences: 22.1, 22.2 (2), 23.1, 25.3, 67.6, 94.1, 94.3, 99.1, Feature 9.

Multifaceted Nodule (3 specimens). These specimens have flakes removed randomly from several directions. Materials: quartzite (2), chert (1). Proveniences: 23.2, 24.2, 25.3.

Bifacial Platform (1 specimen). This core has flakes removed bifacially, but flaking is too random to classify it as an aborted biface. Material: quartzite. Provenience: 100.2.

Prepared Platform (1 specimen). This core is a cobble which has been broken in half; with flakes removed in a regular pattern using the flat broken surface as a platform. Material: quartzite. Provenience: 92.2.

Core Fragments (88 specimens). These specimens are too fragmentary to be identified. Materials: quartzite (88). Proveniences: See Table 7-4.

Ground Stone

Grinding Slab (1 specimen). This specimen measures about 15 x 20 cm (5.9 x 7.9 in) and about 8 cm (3.1 in) thick. On one side, a smooth basin-shaped grinding surface measuring about 11 x 14 cm (4.3 x 5.5 in) is present, whereas on the other side, a small, shallow pit resulting from pecking is present which measures about 2.5 x 3 cm (0.98 x 1.2 in). Material: sandstone. Provenience: Found in scraped area at S27.7 E19.4.

Ceramics

The ceramic assemblage at the Doctors Creek site consisted of a total of 785 specimens. Of this total, 281 specimens were too small or too eroded to be identified, 316 were undecorated and 188 were decorated by several different types of surface treatment. The ceramic sample was treated in the same manner as the assemblage from the Thomas site (see Chapter 6). The assemblage was sorted into preliminary wares and types based on subjective categorizations of the analyst. The paste, surface treatment, and preliminary types are described in Appendix B, this volume.

As was the case for the Thomas site, the specimen counts in this section refer to reconstructed pieces, not excavated sherds. For the purpose of this analysis, thin sherds are less than 7 mm thick. Although the paste and temper were subjectively identified, the Wentworth scale is comparable and includes: silt (<0.063 mm), very fine (0.63 to 0.125 mm), fine (0.125 to 0.25 mm), medium

(0.25 to 0.5 mm), coarse (0.5 to 1.0 mm), and very coarse (1.0 to 2.0 mm).

Grit Tempered Ware

Plain (1 specimen). This sherd has a medium fine paste with medium to fine grit temper including hematite. It is a body sherd which appears to be from a jar. It is poorly smoothed on the outside but well smoothed on the inside. Provenience: 85.1/90.1

Burnished (2 specimens). These two sherds are poorly to moderately well smoothed on the interior, and well smoothed and lightly burnished on the exterior. Both appear to be from jars, with one apparently coming from the base of a straight or everted neck vessel. Proveniences: 32.1, 70.2.

Horizontal Incised (4 specimens). These sherds all come from the same small convex-walled bowl with direct rim. The paste has a medium fine texture with grit temper, including sand and hematite, with some grog. Both the interior and exterior surfaces are lightly smoothed, and the exterior was decorated with at least three fine incised lines below the rim. Provenience: 67.4 (4).

Small Grog Tempered Ware

Plain (80 specimens). This sample consists of sherds with a medium to medium fine paste, tempered with fine to medium fine crushed grog. A number of specimens have a noticeable amount of bone and grit temper as well, but grog appears always to be predominant. Surfaces were smoothed, but not burnished. In thickness, these sherds vary from very thin to thick. Six sherds were rim fragments, two appeared to be portions of vessel bases, and the remainder were body sherds. Estimations of vessel shape were very tenuous, but 49 appeared to be from jars (including the two base fragments and three rims), while 21 may have come from bowls, and one from a bottle. Many of the jar fragments appear to be smudged on the interior, and one may have been a kiln waster. The two base fragments are flat bottomed with a curve up to the wall of the vessel. The thickness of both bases is irregular, with some thickening at the curve to the vessel wall. Two of the rims are from incurving-necked, restricted orifice jars, a third comes from an everted-necked jar, and a fourth from a hemispherical bowl. Rim forms are generally direct or thinned with rounded or flattened lips. The everted-necked jar has a flattened lip with a slightly rolled overhang on the exterior side. Proveniences: 3.1, 7.1, 21.3 (2), 21.7, 24.2, 25.1, 33.1, 44.1, 55.1, 58.1 (2), 58.2, 60.1, 64.1, 65.5 (2), 66.1, 66.6, 67.5 (2), 68.5, 70.3,

71.1, 72.2, 73.1, 73.3, 74.2, 75.1, 75.2, 76.1, 77.1, 79.1, 79.2, 80.1, 81.2 (2), 82.2, 82.3, 83.1 (3), 84.1 (2), 85.2, 86.1, 87.3 (2), 88.1, 88.3, 89.1, 89.3, 90.1 (2), 90.2, 91.1, 91.3, 92.1, 93.1, 93.2, 94.2 (2), 96.2, 98.1, 101.1, 101.2, 103.1 (2), 105.2, 106.1, 106.3, 107.1, 108.2, 109.1, 110.1 (4), 110.4, Feature 5.

Burnished (64 specimens). The majority of this sample consists of body sherds with only one rim sherd present. This material is characterized by medium fine to fine textured paste tempered with finely crushed grog. A few pieces have a small amount of crushed bone or grit as well. The sample seems to be about evenly divided between sherds from jars (18), bowls (24), and bottles (17); with five indeterminate. All the exteriors are smoothed and well burnished, with interior surfaces ranging from unsmoothed to burnished, dependent upon vessel form. The single rim seems to come from a vertical walled or carinated bowl and is slightly thinned with a rounded lip. The jar and bowl sherds range from thick to thin, while the bottle fragments are universally thin. Proveniences: 21.4, 22.1, 23.1 (2), 24.2, 25.1, 30.1, 33.1, 35.2, 48.2 (2), 69.3, 71.1, 72.2, 73.1, 74.1, 76.2, 77.1, 79.1, 79.2, 80.1, 80.2 (3), 80.3, 81.1 (2), 82.2 (2), 83.2, 84.2 (2), 86.1, 88.1, 89.1 (2), 89.3, 90.3, 91.1 (2), 92.2 (2), 94.3, 95.1, 95.2 (2), 100.1, 101.3, 103.2, 105.1 (3), 105.2, 105.3, 106.1 (2), 106.2, 106.3, 107.3, 108.1, 109.2, 110.2, Feature 5, Feature 15.

Incised (2 specimens). These body sherds have finely textured pastes and are tempered with crushed grog. The exterior surface of one is moderately well smoothed and the sherd may come from a bowl or small wide mouth jar. The other sherd appears to be from a bowl and shows the remnants of two deeply incised lines, diagonal to each other, on two of the broken margins of the sherd. The piece appears discolored, is deformed, and shows characteristics of exposure to high heat, all of which probably occurred during firing. In addition to this, one broken edge shows some oxidation through the entire thickness of the sherd, indicating that the piece was at least cracked during firing. Proveniences: 84.1, 96.2.

Groove Incised (5 specimens). These fragments are all body sherds and have a medium fine to fine textured paste, tempered with small grog fragments. All are reasonably thin; four have smoothed exterior surfaces, while the fifth has a well burnished exterior. Interiors appear to be moderately to well smoothed. Forms appear to include carinated bowls and possibly bottles. All have exteriors decorated with wide, shallow, groove incised straight lines. Proveniences: 60.2, 67.3, 78.1, 93.2, 110.2.

Horizontal Incised (4 specimens). These sherds are all characterized by medium fine to fine textured pastes, with medium to finely crushed grog temper. Three are rims, while the fourth comes from the shoulder of a necked jar. Exterior surfaces are poorly to well smoothed and decorated with one or more narrowly incised horizontal lines. On three of these sherds, these lines occur parallel to, and directly below the rim; while on the fourth, the line occurs at the base of the neck. On one sherd, burnishing subsequent to the incising has partially smoothed over one of the lines. Interiors range from being unsmoothed to well smoothed. Vessel forms include restricted necked jars, bowls, and bottles. All of the rims are moderately to well thinned with rounded lips. Proveniences: 68.2, 80.2, 87.1, 108.2.

Lip-Incised (1 specimen). This large rim sherd has a medium fine textured paste and is tempered with finely ground grog with a small amount of crushed bone. The fragment appears to be from a vertical walled hemispherical bowl, with a smoothed exterior and a poorly smoothed interior. The exterior is decorated with two deeply incised and roughly parallel lines running horizontally around the rim of the vessel just below the lip. The rim is slightly thickened, while the lip is flattened with another incised line encircling the vessel in its center. Provenience: 74.3.

Diagonal Incised (2 specimens). These two rim sherds may come from the same vessel, and have a medium textured paste tempered with small grog, with some grit and bone. They appear to be from a bowl and have an unevenly burnished surface on both the interior and exterior. Subsequent to this burnishing the exterior surface below the lip was lightly incised with slightly curving lines, diagonal to the rim of the vessel. These lines were not uniformly placed and have the appearance of being rather haphazardly incised on the vessel. The rims are slightly thinned and have a rounded lip. Proveniences: 94.3, 95.2.

Zoned Incised (3 specimens). These two body sherds have a medium fine textured paste and are tempered with finely crushed grog, with some bone and grit as well. Interiors are smoothed to burnished, while exteriors are well smoothed and decorated with zones of closely spaced parallel incised lines, enclosed by straight incised lines. These exteriors appear to have been at least partially burnished subsequent to this incising. Vessel forms include bowls and possibly bottles. Proveniences: 101.2 (2), 110.1.

Incised Zoned Punctate, Variety I (2 specimens). These conjoined body sherds have a medium fine textured paste, tempered with finely crushed grog and grit. They appear to have come from a bottle or a small globular jar with a relatively thick wall. The interior is moderately well smoothed, while the exterior is very well smoothed to lightly burnished, and decorated with zones of elongated punctations enclosed by curvilinear and horizontal incised lines. Proveniences: 30.1, 77.6

Incised Zoned Punctate, Variety II (4 specimens). Three of these fragments are body sherds and may be from the same vessel, while the fourth appears to be part of a base. All have a medium fine paste and are tempered with fine grog and some grit. Both interiors and exteriors are smoothed but not burnished. Exterior decoration consists of zones of circular or nearly circular punctations enclosed by straight or slightly curving incised lines. All of the sherds appear to be from bowls with medium thick walls. The single basal sherd is from a vessel with a flat, circular bottom and a slight thickening where the base joins the side wall of the vessel. Proveniences: 69.1, 100.1, 101.1, 108.3.

Engraved (1 specimen). This single body sherd has a medium fine textured paste with small grog temper. Both the interior and exterior surfaces are very well smoothed with the exterior being burnished as well. An engraved design involving curvilinear lines is cut through the burnished exterior surface. The fragment appears to be from a bowl. Provenience: 101.1.

Engraved Punctated (2 specimens). These two sherds, possibly from the same vessel, have a medium fine textured paste with temper of finely crushed grog. Both interior and exterior surfaces are smoothed, and one sherd shows some burnishing on the exterior surface as well. Both sherds show areas of irregularly shaped post-firing punctations made through the exterior surface of the vessel to expose the darker core color. One sherd appears to come from a carinated bowl with the decorated area above the shoulder. Proveniences: 30.1, 40.1.

Fine Punctated (3 specimens). These small sherds have a medium fine textured paste with small grog temper. The interior surfaces appear to be very well smoothed to lightly burnished, while the exterior is smoothed and decorated with relatively small, generally circular, deep conical punctations. The fragments are very small and may actually come from a zoned punctated vessel, probably a bowl, based on the well smoothed interior. Provenience: 30.1, 40.1, 73.1.

Coarse Punctated (3 specimens). These three sherds have a medium textured paste, heavily tempered with small grog with some grit and bone as well. The sample consists of two bodies and one rim, all apparently from jars. Both interiors and exteriors are moderately smoothed, with the exteriors decorated with relatively large, crude punctations placed in what appears to be a random pattern. The single rim sherd has a direct rim with a rounded lip. The punctation begins just below the lip. Proveniences: 55.1, 72.1, 110.5.

Fingernail Impressed (4 specimens). This small sample consists of three body sherds and one rim, all apparently from jars. They have a medium to medium coarse textured paste and are tempered with medium fine to medium sized crushed grog, as well as some bone and grit. Interiors are moderately to very well smoothed, while exteriors are smoothed and decorated with punctations or impressions of fingernails and fingertips. The single rim sherd has a thinned rim with a flattened to slightly convex lip form. The fingernail impressions begin just below the lip on this fragment. Proveniences: 23.1, 87.2, 106.3, 108.2.

Orange Slipped (1 specimen). This single body sherd has a medium fine textured paste, with fine grog temper plus some bone and grit, as well. The vessel interior is poorly smoothed, while the exterior is moderately well smoothed and covered with a thin orange slip which was then unevenly burnished. The fragment appears to be from a restricted necked jar, coming from just below the base of the neck. Provenience: 77.3.

Grog Tempered Ware

Plain (224 specimens). This material is characterized by a medium to coarse paste and is heavily tempered with relatively large fragments of crushed grog. The material includes 201 body sherds, 14 rim fragments, and nine base fragments. The most predominant form appears to be that of a jar, represented by 115 body sherds, nine rims, and all nine bases. All of the rims appeared to come from restricted orifice jars without turned rims, while a number of shoulders from flaring necked jars were present as well. In addition, an appreciable number of sherds also appear to come from bowls (34 bodies and one rim), with the remainder being of unidentifiable form. Exterior surfaces are poorly to well smoothed, but unburnished, while interiors range from being totally unsmoothed to well smoothed, presumably dependent upon the form of the vessel. Sherd thickness ranges from extremely thick to medium thin. The basal fragments are all identified as

being from jars, most from thick walled, flat bottomed jars. Three of the four large base fragments have circular bottoms with the exterior angle where the side joins the base ranging from very sharp to gently curved. One base appears to be from a flat bottomed, square or rectangular based jar while another appears to be from a small jar with a flat disc base and thin walls. The single bowl rim was thinned with a flat lip, while the most common jar rim form was thinned with a rounded lip. Other bowl rim forms included direct with a flat to slightly convex lip, and thinned with either flat or interior beveled lips. The unidentified form rims added direct rims with rounded lips to the list of rim forms present with this type. Proveniences: 3.1 (3), 9.1, 13.1 (2), 21.2, 21.3, 22.1 (3), 23.1, 24.2 (3), 27.1, 28.1 (3), 30.1 (3), 31.1, 39.1, 40.1 (2), 43.1, 48.1, 48.2 (2), 48.4, 58.1, 58.2 (2), 60.1 (4), 65.1, 65.2, 65.9, 66.3, 66.6, 67.7, 68.4, 69.1 (3), 69.2 (2), 69.3, 70.1 (2), 72.1 (2), 73.1, 74.1 (5), 74.3 (2), 75.1 (2), 76.1 (2), 76.2 (4), 76.3, 77.1 (2), 77.2, 77.3 (2), 77.4 (3), 77.5, 78.1, 80.1, 80.2 (2), 80.3 (2), 81.2, 81.3 (2), 82.1 (3), 82.2 (2), 82.3 (4), 83.1 (3), 83.2, 83.3, 84.1, 84.2, 84.3, 85.1, 85.2, 86.1 (3), 86.3 (3), 87.1 (3), 87.2 (3), 88.1 (5), 88.2 (2), 89.2 (3), 89.3, 90.1, 90.2 (4), 90.3, 91.1, 91.2, 91.3 (3), 92.1 (2), 92.2, 93.1, 93.3, 94.2, 94.3, 95.1 (4), 95.2 (3), 95.3 (2), 96.2, 96.3 (2), 96.4, 97.1 (2), 97.2 (3), 97.4, 98.1, 98.2 (2), 99.1 (3), 99.2 (2), 99.3 (2), 100.1, 101.1 (3), 102.2 (2), 103.1, 103.2 (6), 104.1 (2), 104.2 (2), 105.2 (2), 106.2, 107.2, 107.3 (3), 108.1, 108.3, 109.2, 109.3, 110.1 (2), Feature 1, Feature 2 (4), Feature 3, Feature 5, (3), Feature 14, Feature 26, Feature 28 (2).

Burnished (40 specimens). This material is characterized by a medium to coarse textured temper with relatively large pieces of crushed grog and small amounts of grit and crushed bone. The exterior surfaces (and in one case, the interior surface of a bowl) are smoothed and moderately to well burnished. Interior surfaces range from moderately smoothed to burnished. The bulk of the material appears to come from jars (31 sherds), but a small amount of material represents bowls (6 sherds). The majority of the specimens are body sherds, with two rims and one base. The base appears to be circular and flat bottomed, but is too small to identify the form of the vessel from which it comes. One rim comes from a jar and one from a bowl; both are thinned; the jar with a convex lip and the bowl with a flattened lip. Proveniences: 24.2, 25.1 (2), 32.1, 38.1, 68.3, 71.1, 72.2, 73.1 (3), 75.2, 75.3 (2), 77.1, 77.3, 77.6, 80.1, 81.2 (3), 82.2, 82.5 (2), 84.1, 85.2, 86.3, 95.4, 98.1, 99.1 (2), 100.1, 101.1 (2), 102.2, 105.2, 105.3, 106.2, 108.2, Feature 4.

Incised (4 specimens). These sherds are all body sherds and all have a medium to coarse textured paste, tempered with relatively large pieces of grog. Three of the four appear to be from jars, with the fourth having an unidentifiable form. All are characterized by the presence of shallow, faintly incised lines on a smoothed, but unburnished exterior surface. All of the incised lines are straight, but form no identifiable designs. Interiors are moderately smoothed. Proveniences: 25.1, 92.1, 101.1, 108.1.

Horizontal Incised (2 specimens). These two sherds, which may come from the same vessel, have a medium coarse textured paste and are tempered with chunks of grog and some grit (including a few large pieces of what appears to be crushed limestone). One sherd is a rim while the other is a small fragment of body. Both appear to come from jars. The rim is from a flaring tall necked vessel with a slightly thinned rim and a flattened lip. A series of deep and crudely incised horizontal lines begins about a centimeter below the rim and probably continues to the base of the neck (the sherd shows evidence of at least four). The other sherd appears to come from another part of the neck and shows the remains of two incised lines. The exterior was poorly smoothed prior to the incising, only spottily burnished for about 2 cm below the lip and then left smoothed. Proveniences: 67.2, Feature 3.

Incised Zoned Punctate (5 specimens). These five body sherds are all very similar and may have come from the same vessel. The paste is medium to coarse textured with abundant temper of large pieces of grog. They all appear to be jars and have moderately well smoothed interiors. The exteriors are all poorly smoothed and decorated with zones of small, irregularly shaped random punctations enclosed by wide and shallow incised lines. The zone of decorations appears to include at least the lower neck and sides of the jars. Proveniences: 67.2, 72.1, 91.1, 94.2, 99.3.

Bone Tempered Ware

Plain (14 specimens). This sample contains only body sherds. The paste is medium textured and tempered with abundant pieces of finely to moderately well crushed bone, as well as some grog (crushed bone is the major component of the temper in this ware). The exteriors are generally moderately to well smoothed with the interiors ranging from unsmoothed to very well smoothed depending upon the form of the vessel. The most common form appears to be that of a jar (7 sherds), but a few

sherds appear to come from bowls (2 sherds) and bottles (2 sherds) as well. Proveniences: 21.7, 26.1, 54.1, 73.1, 76.1 (2), 89.1, 90.1, 91.1, 94.3, 95.1, 99.3, 103.1, 107.1.

Burnished (25 specimens). This sample includes one rim with the rest being body sherds. The paste is medium fine to medium textured, and tempered with finely pulverized bone, with some grog. The sherds vary in thickness from medium to thin, and the most common form is that of a bowl (16 sherds), with jars (6 sherds) and bottles (1 sherd) also represented. The vessel exteriors are all very well smoothed and well burnished. Interiors vary from being unsmoothed to well smoothed and lightly burnished. The single rim comes from what appears to be a flaring walled bowl and is very minimally thinned, with a lip which varies from flattened to rounded. Proveniences: 3.1, 27.1, 35.1, 69.1, 77.1, 77.3, 78.1, 78.2, 79.1, 82.2, 82.5, 87.1, 87.3, 90.1, 90.2, 92.1, 95.2, 96.3, 99.3 (2), 103.1, Feature 2, Feature 3, Feature 5, Feature 13.

Zoned Incised (1 specimen). This is a small body sherd with a medium fine textured paste and temper of pulverized bone. The sherd is slightly eroded, but both the interior and exterior surfaces appear to have been smoothed but unburnished. (Suggesting the sherd originally came from a jar). The exterior appears to be decorated with zones of parallel incised lines enclosed by single straight lines which are diagonal to the zoned lines. All incised lines are wide and shallow. Provenience: 109.4.

Engraved (3 specimens). These specimens are thin walled body sherds which appear to be from bowls. The paste is medium fine textured and tempered with abundant pulverized bone. On two of the three, both interiors and exteriors are smoothed and burnished. The third is well smoothed on both the interior and exterior surfaces. All have straight lines engraved through the burnished surface on the vessel exteriors. One sherd has two parallel engraved lines which are diagonal to the direction of burnishing, while another has two engraved lines which are diagonal to each other and appear to have been located on the neck of the bowl. The third specimen is decorated with straight lines in what appears to have been a rectilinear pattern. Proveniences: 72.1 (2), 101.2.

Fingernail Impressed (1 specimen). This body sherd has a medium fine textured paste and is heavily tempered with pulverized bone, plus grog and some relatively large pieces of grit (including hematite). The sherd comes from a jar and has a smoothed interior and exterior. The exterior is decorated with shallow to deep fingernail

impressions, with some uneven burnishing which apparently was done subsequent to the impressing. Provenience: 83.3.

Shell Tempered Ware

Plain (2 specimens). These two body sherds are characterized by a fine textured paste, tempered with crushed shell. Both sherds appear to be from jars and are smoothed on the interior. One is smoothed on the exterior and the other is poorly smoothed with uneven burnishing marks on the high spots on the uneven surface. Proveniences: 32.1, 106.2.

Miscellaneous Fragments

Three small fragments of ceramic pipes and one fragment of an unidentified ceramic ornament were recovered at the Doctors Creek site. The fragments were only 1-1.5 cm (0.4-0.6 in) long and 0.5-1.2 cm (0.2-0.5 in) wide. Two pipe fragments (e.g., part of a bowl and part of a stem) were recovered from adjacent 50 x 50 cm (19.7 x 19.7 in) units located at the southern edge of the study area (Units 22 and 55), and one pipe bowl fragment was recovered from Unit 90 in the Midden Block. The ornamental piece had a smooth exterior with a rounded exterior edge and a hole modeled (as opposed to drilled) in the center. It was too thick to be a pipe sherd, and resembled part of an ear spool, but no definite identification could be made. It was found in 50 x 50 cm (19.7 x 19.7 in) Unit 24 at the southern edge of the study area.

Bone Artifacts

Several bone tools were recovered from the Doctors Creek site. Bonnie Yates presents a more detailed discussion of these in Appendix D.

SUBSISTENCE RESOURCES

Faunal Analysis

by Bonnie C. Yates

An estimated 17,000 pieces of animal bone were submitted to the Zooarchaeology Lab at North Texas State University for identification and analysis from site 41DT124. Of these, ca. 20% are identifiable to some level of taxonomic order (Table 7-5; also see Appendix D). Preservation of the faunal remains is variable, but in general, the surfaces of the bones show evidence of root staining and etching, carnivore and rodent gnawing, and

TABLE 7-5

Faunal Species Identified At Site 41DT124

Common Name	Taxa	Common Name	Taxa
White-tailed deer	<i>Odocoileus virginianus</i>	Prairie chicken	<i>Tympanuchus</i> sp.
Cow/bison	<i>Bos/Bison</i>	Hawk	<i>Buteo</i> sp.
Sheep/Goat/Pronghorn	<i>Artiodactyla</i>	Falcon	<i>Accipiter</i> sp.
Raccoon	<i>Procyon lotor</i>	Barn owl	<i>Tyto alba</i>
Dog/Coyote	<i>Canidae</i>	Crow	<i>Corvus corax</i>
Gray Fox	<i>Urocyon cinereoargenteus</i>	Woodstork	<i>Mycteria americana</i>
Mink	<i>Mustela vison</i>	Rattlesnake	<i>Crotalus</i> sp.
Striped skunk	<i>Mephitis mephitis</i>	Cottonmouth	<i>Agkistrodon piscivorus</i>
Beaver	<i>Castor canadensis</i>	Non-poisonous snake	<i>Colubridae</i>
Vole	<i>Microtus</i> sp.	Water snake	<i>Nerodia</i> sp.
Cotton rat	<i>Sigmodon hispidus</i>	Pond slider	<i>Chrysemys</i> sp.
Squirrel	<i>Sciurus</i> sp.	Snapping turtle	<i>Chelydra serpentina</i>
Pocket gopher	<i>Geomys bursarius</i>	Musk/Mud turtle	<i>Kinostemidae</i>
Eastern cottontail	<i>Sylvilagus floridanus</i>	Map turtle	<i>Graptomys</i> sp.
Swamp rabbit	<i>Sylvilagus aquaticus</i>	Box turtle	<i>Terrapene</i> sp.
Jackrabbit	<i>Lepus californicus</i>	Toad/Frog	<i>Anura</i>
Armadillo	<i>Dasypus novemcinctus</i>	Leopard frog	<i>Rana utricularia</i>
Opossum	<i>Didelphis virginiana</i>	Amphiuma/Siren	<i>Amphiumidae/Sirenidae</i>
Mallard	<i>Anas platyrhynchos</i>	Catfish	<i>Ictaluridae</i>
Shoveler	<i>Spatula clypeata</i>	Bowfin	<i>Amia calva</i>
Heron	<i>Ardeidae</i>	Gar	<i>Lepisosteus</i> sp.
Turkey	<i>Meleagris gallopavo</i>	Sunfish/Bass	<i>Centrarchidae</i>
Bobwhite quail	<i>Colinus virginianus</i>		

infrequently, abrasion from movement in the soil matrix. Overall, preservation can be said to be good, which accounts for a fairly high number of identified elements ($n = 3500$). In several instances, however, long bones of deer appear to have undergone a leaching process, leaving the cortex (exterior) separated from the inner compact bone. The cause of this phenomenon appears to be related to leaching of calcium carbonates from the less dense bone on the interior of the shaft, causing shrinkage. Units containing such bone include Units 66 and 68. Dr. C. Reid Ferring has noted that this phenomenon is occurring at all sites at Cooper Lake (see Appendix E). Thus, sites with faunal remains inferentially date to the Late Prehistoric period, since Archaic or earlier sites are expected to lack bone due to this leaching process.

The taxa identified from this assemblage are the most diverse of any site studied from the lake area, comparable to the entire array of taxa listed for 17 sites (most notably

the Arnold site) studied by Henderson (1978b). Unlike Arnold, Doctors Creek is a terrace site north of the South Sulphur River, where according to Cleveland (1975), exploitable resources would have been optimal. The proximity to riparian habitat, however, at both sites is the key factor in the species diversity evident (see Appendix D, Table D-7).

Again, like other sites at Cooper, venison was the meat of choice. Antelope was taken but not in appreciable abundance, and bison, although sighted in East Texas during early historic times (Hatcher 1927), has been only tentatively identified among the remains from this site or those from earlier investigations (Butler 1975a, 1975b; Henderson 1978a, 1978b).

Vertical distribution of bone concentrates in Levels 2 and 3 of the midden block and in Levels 5 and 6 of the burial block, with a secondary concentration in Level 2 of the burial block. Outlying units contained no appreciable

quantities of bone and very few identified faunas. Horizontal distribution finds two major concentrations in the midden block. One in the northeastern corner (Units 85, 89, 95, and 110), and another in the center of the block (Units 69-70, 74-77, and 79-82).

Although minimum numbers of individuals are listed for the site as a whole, many units contained multiple individuals based on repeated elements other than the one chosen for each species' MNI determination listed in Table D-7. For example, in Unit 98 Level 4, deer dentition indicates a minimum of three adult deer, and a neonatal metapodial fragment is probably a fourth individual at that locus. A vertebral fragment appears to be another fawn older than the newborn and may be a fifth individual there.

Table D-8 (see Appendix D) lists the identified taxa for each of the designated features scattered across the site. These taxa are representative of the faunas recovered from the non-feature units. The only species unique to a feature are a shrew mandible and a femur of an accipiter hawk found in Feature 2. Also in Feature 2 were 10 individual cottonrats (*Sigmodon hispidus*), mostly mandibles; in the absence of representative post-cranial remains for these medium sized rodents, it is conjectured that these remains were purposefully (i.e., culturally) deposited in this feature for reasons unknown.

The snakes at this site cluster in Feature 4 where several different individuals are distinguished either by species identification or differential states of preservation. For example, a viper, a water snake, and at least four other non-vipers were found all in one provenience bag. Some are burned, but others are not. Butchering marks were prevalent on deer and other animals in this assemblage. Dismembering marks on deer long bones and axial elements predominate. Only three elements (e.g., carpal, tarsal, phalanx) exhibited skinning marks, and only three elements (e.g., pelvis fragment, lumbar spine, and femur shaft) showed filleting marks. Marks on a calcaneum suggest those caused by cutting a hole in the flesh between the tendon and the calcaneum were to hang a carcass by the "heel" for further processing (Binford 1981:119). Dismembering cuts on a cervical vertebra are similar to what Binford (1981:137) describes as "stiff body" cuts made after a carcass is already rigid or frozen.

Deer was not the only animal butchered at this site for which evidence was found on skeletal remains. Butchering marks on animal bones other than deer include raccoon (Levels 3 and 4) and rabbit, skunk, turkey, hawks, and turtle (Levels 1 and 2). Raccoon is especially notable because both skinning and dismembering cuts are recorded.

In summary, faunal remains from 41DT124 indicate a subsistence base dependent on white-tailed deer for its

meat source. Turkey, turtles, rabbits, and some fur bearers also figure prominently in the subsistence strategy. The species represented in this sample indicate exploitation of riparian and woodland edge habitats; still present in the site's environs today.

Macrobotanical Analysis

by Cathy J. Crane

Twenty-six flotation samples from this site were examined for plant remains (Table 7-6). As at the other Cooper Lake sites, wood charcoal and hickory nutshell were present in all samples. Not only was the hickory nut an important dietary item, but the large quantities of nutshell fragments present suggest that they were consistently used for fuel. The other types of nuts, pecans, and acorns occurred in 76.2% and 71.4% of the non-posthole features, respectively, which indicates that they also played an important part of the economy.

Cultigen remains were more common at this site than at the other Cooper Lake sites. Although there was only a total of .08 g of maize recovered from the site, minute quantities of maize occurred in 19.1% of the non-posthole features. Whereas, squash rind occurred in an incredible 71.4% of the features. It is not known if differential preservation could account, at least in part, for this discrepancy.

Tuber (cf. *Psoralea*) fragments were found in 80.9% of the non-posthole features, and consequently, it is possible that it formed a more important part of the economy than cultigens, particularly maize. Features 13 and 7 (a posthole) contained the largest quantities of tuber remains. Tuber fragments also occurred in 60% of the postholes, which suggests that tuber remains were relatively common in the general midden deposit.

Only 55 seeds were recovered from the features at this site (Table 7-7). *Lathyrus* sp. or *Vicia* sp. was the dominant seed type occurring in 23.8% of the non-posthole features. *Iva annua* was the next most important seed; found in 14.3% of the features. An unidentified type of grass caryopsis with a long, wide embryo was also present in 14.3% of the features, which indicates that its presence may be due to human utilization rather than to accidental inclusion in the features. Less important seed types, which occurred in 9.5% of the features, include *Chenopodium*, *Galium*, *Scleria*, and *Convolvulus*. Whereas, *Rubus*, *Polygonum*, and *Euphorbia* seeds occurred in only one feature each.

Features 26 and 30 contained the largest number and variety of seeds as well as a moderate amount of tuber and squash remains. In fact, the nine *Iva annua* kernels and one achene found in Feature 30 is the largest number of seeds from a single taxon to occur in any feature at the

TABLE 7-6
Distribution Of Plant Remains¹

Feature	Wood Charcoal	Hickory Nutshell	Pecan Nutshell	Acorn Shell	Nutmeat	Maize	Squash Rind	Tuber	Rhizome	Seeds	Unknown	Total
2	4.12	14.65	0.10	<0.01	—	—	—	0.06	—	0.01	0.09	<19.04
4 U. 84	1.91	12.34	0.31	0.10	—	—	0.01	0.06	—	—	0.07	14.80
4 bottom	5.81	22.37	0.25	0.04	—	—	0.01	0.01	—	—	1.14	29.63
5 U. 78	0.66	10.59	0.06	0.02	—	—	0.05	0.02	—	—	0.05	11.45
5 L. 6	3.63	16.76	0.36	0.04	—	—	0.05	0.08	—	0.01	0.09	21.02
13	6.08	19.22	0.11	0.01	0.14	—	0.02	0.37	—	<0.01	0.96	<26.92
14	2.99	23.41	0.15	0.02	—	0.04	0.21	0.01	—	<0.01	0.89	<27.73
15	1.93	3.78	—	<0.01	—	0.01	0.04	—	—	<0.01	0.03	<5.81
16	2.56	10.04	0.18	—	—	—	0.04	0.08	0.01	<0.01	0.13	<13.05
19	0.36	2.39	—	—	—	—	0.01	—	—	—	—	2.76
20	2.73	14.08	—	<0.01	—	—	0.04	0.06	—	—	0.11	<17.03
21	1.59	4.46	0.03	0.01	—	—	0.03	0.04	—	0.01	0.06	6.23
22	1.38	9.09	0.10	<0.01	—	—	—	0.03	—	—	0.08	<10.69
26	4.98	28.64	0.14	0.03	—	0.01	0.14	0.08	0.04	0.03	1.12	35.21
28	1.82	11.13	0.23	—	—	—	0.01	0.07	—	—	0.04	13.30
29	0.90	15.75	—	0.01	—	—	—	0.03	—	—	0.09	16.78
30	7.92	29.80	0.14	0.23	—	—	0.02	0.12	—	0.03	1.16	39.42
U.65 L.1	0.29	0.95	0.01	<.01	—	<0.01	—	—	<0.01	—	0.02	<1.3
U.107 L.3	0.53	4.03	0.01	—	—	—	<0.01	0.05	—	—	0.05	<4.68
<i>Postholes</i>												
7	3.72	5.23	0.11	0.01	—	—	0.01	0.31	—	<0.01	0.04	<9.44
11	0.03	0.12	—	—	—	—	0.11	<0.01	—	<0.01	—	<.28
12	0.06	0.35	—	—	—	—	—	—	—	—	—	0.41
17	2.92	4.48	0.03	—	—	—	—	—	—	—	0.01	7.44
31	0.77	2.46	—	<0.01	—	0.01	—	—	—	—	0.03	<3.28
<i>Burials</i>												
2	0.26	3.76	0.04	—	—	—	—	—	—	—	0.01	4.07
4	0.36	3.79	—	—	—	—	—	—	—	—	—	4.15
Total	60.31	273.67	2.36	<0.58	0.14	<0.08	<0.81	<1.49	<0.06	<0.15	6.27	345.92

¹ Specimens are enumerated in grams(gm).

Cooper Lake sites. It seems likely that these features were used to parch seeds and perhaps to process tubers and squash. In contrast, the plant remains present in many of the other features may have come from midden fill and were not originally associated with the features themselves.

The seasonality of the plant remains recovered from this site suggest that the site may have been occupied year round. However, all of these plant foods can be stored,

and consequently, the plant remains by themselves are not necessarily reliable indicators of site seasonality. However, the faunal remains also suggest the possibility of year round occupation.

CULTURAL FEATURES

Cultural features recognized at the Doctors Creek site included a refuse concentration, hearths, large pits of

TABLE 7-7
Seed Frequencies

Plant Taxa	Features											Unit	Total
	2	5	7	11	13	14	15	16	21	26	30	65	
<i>Iva annua</i>	—	—	—	—	—	—	—	—	3	1	10	—	14
<i>Lathyrus</i> sp. / <i>Vicia</i> sp.	1	—	—	—	1	—	—	1	—	1	1	—	5
<i>Chenopodium</i> sp.	—	—	—	—	—	—	2	—	—	—	4	—	6
<i>Polygonum</i> sp.	—	—	—	—	—	—	—	—	—	—	2	—	2
<i>Galium</i>	1	—	1	—	—	—	—	—	—	1	—	—	3
<i>Scleria</i> sp.	—	1	—	—	1	—	—	—	—	—	—	—	2
<i>Euphorbia</i> sp.	—	—	—	—	—	1	—	—	—	—	—	2	3
<i>Convolvulus</i> sp.	1	—	—	—	—	—	—	—	—	1	—	—	2
<i>Cruciferae</i>	—	—	—	—	—	—	—	—	—	—	1	—	1
<i>Gramineae</i>	—	2	—	—	—	3	—	—	—	3	3	—	11
Unidentified Seeds	—	1	1	1	—	—	—	—	—	—	—	—	3
Unidentifiable Fragments	—	—	—	—	—	—	—	—	—	—	3	—	3
Total	3	4	2	1	2	4	2	1	3	7	24	2	55

various shapes and sizes, postholes, grave pits, and burials. Feature numbers were assigned to every category of feature, but burials also received separate burial numbers. For example, a grave pit associated with a burial received a feature number, whereas the skeletal remains within the grave received a burial number. A total of 31 features and two burials, one from each grave pit, were recorded during the course of testing and intensive excavations.

In this section, brief descriptions of every feature recorded at the Doctors Creek site are presented. To facilitate comparison among features, descriptive data for all features and burials are listed in Table 7-8, and feature contents are listed in Table 7-9.

To control for fluctuations in feature size, contents from flotation samples were volume-corrected so that comparisons could be made. The volume-corrected values are presented in Table 7-10 along with the volume-corrected contents of a control sample taken from a non-feature midden context. Figure 7-11 is a map illustrating the plan views of all features uncovered within the Midden Block and surrounding mechanically scraped area, showing their relationship to each other.

Comparisons of the flotation sample taken from a non-feature context (Unit 107, Level 3), representing the general midden content, did not appear to be significantly different from samples taken from within many features. This indicates that secondary deposition has obscured the original function of these features, making it difficult to distinguish which items which were clearly associated with feature use.

In this discussion, secondary deposition is defined as the inclusion of artifacts which were not directly related to feature use. Several processes can be responsible for such inclusions: artifacts present on the ground surface prior to digging a pit can be mixed into the fill accidentally; refuse unrelated to feature use can be intentionally discarded into the pit during the fill episode, or material deposited after the feature had been filled could enter the fill through natural soil mixing processes.

Feature size and shape are not likely to change once the feature has been filled, unless episodes of reuse expand the original shape prior to bioturbation and post-depositional modifications of the archaeological record. Therefore, size and shape indices are more useful criteria

TABLE 7-8

Metrical Data For Cultural Features Sampled

Feature	Length (cm)	Width (cm)	Depth Below Surface (cm)	Area (m²)	Volume Floated and Processed (liters)	Munsell Color	
						10YR	7.5YR
<i>Refuse Concentration</i>							
1	165	40	40-50	0.60	—	3/2	—
<i>Hearths</i>							
6	45	25	22-28	0.11	—	3/2, 3/3, 4/4	—
13 ¹	120	100	21-47	>0.87	11	3/2, 6/3	5/6
14 ¹	120	90	16-33	>0.65	60	3/3, 6/3	5/6
<i>Large Pits</i>							
2	150	130	25-70	0.96	20	3/2	—
3 ¹	120	100	40-66	>0.71	—	3/2	—
4	170	120	30-70	2.02	40	3/2	—
5	310	275	30-57	3.63	60	3/3	—
9	>110	>70	40-70	>0.60	—	3/2	—
15	>50	>35	30-55	>0.17	20	—	—
16	175	>65	33-54	>0.80	20	3/3	—
20	92	90	42-58	0.62	40	3/1	—
21	90	85	40-60	0.63	40	3/3	—
22	70	60	40-51	0.36	24	3/2	—
26	120	110	30-47	1.11	40	3/2	—
28	110	104	30-39	0.96	35	3/2	—
29	120	100	30-49	0.87	48	3/2	—
30	?	70	0-80	?	20	3/2	—
<i>Postholes</i>							
7	30	27	20-45	0.10	20	3/2	—
8	34	15	20-46	0.07	10	3/1	—
10	17	17	30-37	0.03	—	3/2	—
11	30	22	30-37	0.06	3	3/3	—
12	20	18	30-41	0.05	4	3/3	—
17	25	20	30-49	0.06	10	3/2	—
18	32	25	30-60	0.09	10	3/1	—
23	30	23	40-43	0.06	—	3/3	—
24	30	19	40-48	0.07	—	3/3	—
27	16	16	35-43	0.04	—	3/2	—
31	?	23	0-56	?	3	3/2	—
<i>Grave Pits</i>							
19	181	76	40-54	1.14	20	3/3	—
32 ¹	90	70	60-95	0.45	—	3/2	—
<i>Burial</i>							
I	79	53	70-95	—	—	3/2	—
1	170	44	42-54	—	24	3/3	—

¹ Length and width are estimates since only part of the feature was exposed.

TABLE 7-9
Contents Of Cultural Features Sampled

Feature	Recovery Method	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Ceramic	Baked ¹ Clay	Bone ¹	Shell ¹	Charcoal ¹	Burned ¹ Rock
<i>Refuse Concentration</i>												
1	DS	—	3	—	31	—	—	7.5	—	—	—	21
<i>Hearths</i>												
13	WS	—	—	1	—	—	1	1	—	4	—	1
	F	—	—	—	11	—	—	35	14	14	11	8
14	WS	—	—	1	3	—	1	—	62	22	5	—
	F	—	2	1	43	—	—	120	47	18	29	22
<i>Large Pits</i>												
2	WS	3	3	10	102	5	7	503	690	526	120	333
	F	—	—	—	30	—	—	7	16	33	24	8
3	WS	1	—	5	21	1	3	98	58	70	51	38
4	WS	3	—	1	71	3	3	574	435	432	62	206
	F	1	—	—	21	—	—	14	47	62	63	22
5	WS	7	—	4	68	3	1	568	437	284	91	172
	F	—	—	—	37	—	3	28	32	34	50	34
9	WS	4	1	5	21	4	1	110	232	97	87	51
15	WS	—	1	2	14	—	1	37	47	12	2	16
	F	—	—	—	5	—	—	—	36	9	—	6
16	WS	—	—	1	11	—	—	5	19	16	2	25
	F	—	—	—	9	—	—	9	9	6	13	2
20	F	—	1	—	4	—	—	12	94	19	18	13
21	F	—	—	—	1	—	—	7	14	10	6	2
22	F	—	—	—	13	—	—	30	73	16	13	12
26	WS	—	—	—	1	—	—	17	56	22	1	4
	F	2	—	—	20	—	1	23	39	30	36	22
28	F	—	—	—	18	—	2	29	33	15	12	12
29	WS	1	—	—	—	—	—	—	77	—	—	—
	F	—	2	1	42	—	—	37	7	12	17	20
30	F	1	1	—	25	—	—	97	40	17	37	80
<i>Postholes</i>												
7	F	—	—	—	7	—	—	7	11	6	12	4
8	F	—	1	—	1	—	—	3	2	2	—	—
11	F	—	—	—	1	—	—	—	1	2	1	—
12	F	—	—	—	—	—	—	—	2	2	2	—
17	F	—	—	—	6	—	1	12	10	5	—	5
31	F	—	—	—	—	—	—	—	3	3	2	—
<i>Grave Pit</i>												
32	WS	2	1	—	2	—	—	—	—	—	18	—
<i>Burial</i>												
2	F	—	—	—	1	—	—	2	20	2	1	4
Total		25	16	32	640	16	25	2,392.5	2,663	1,802	786	1143

¹ Baked clay, bone, shell, and charcoal are enumerated in grams; all other categories are enumerated in counts.

KEY:

DS = Dry Screen

WS = Water Screen

F = Flotation

TABLE 7-10

Volume Corrected¹ Contents Of Cultural Features Sampled

Feature	Volume Floated	Correction Factor	Tools	Large	Small	Large	Small	Ceramics	Baked Clay ²	Bone ²	Shell ²	Charcoal ²
2	20	5	—	75	75	40	—	—	35	80	170	120
4	20	5	—	35	5	40	5	—	25	110	90	85
4(bottom)	20	5	5	40	25	50	15	—	45	125	220	230
5	60	1.66	—	35	27	48	8	5	47	53	56	66
7	20	5	—	20	15	20	—	—	35	55	37	48
8	10	10	10	10	—	—	—	—	31	18	24	—
11	3	33.3	—	—	33	—	—	—	—	33	50	33
12	4	25	—	—	—	—	—	—	—	50	50	50
13	39	2.56	—	13	15	15	5	3	92	36	64	28
14	60	1.66	5	48	23	37	—	—	199	78	30	51
15	20	5	—	20	—	25	5	—	—	178	44	—
16	20	5	—	10	35	10	—	—	43	44	31	65
17	10	10	—	40	20	50	—	10	120	100	50	—
18	10	10	—	—	—	—	—	—	—	—	—	—
19	20	5	—	5	—	5	5	—	10	20	—	35
20	40	2.5	—	10	—	33	—	—	29	235	49	44
21	40	2.5	—	—	3	5	—	—	18	34	24	14
22	24	4.16	—	25	29	8	4	4	125	304	67	50
26	40	2.5	5	30	23	3	5	3	59	90	79	90
28	35	2.86	—	34	17	22	3	6	83	94	43	34
29	48	2.08	6	50	35	42	—	—	77	20	25	35
30	20	5	10	60	65	25	10	—	485	200	85	50
31	3	33.3	—	—	—	—	—	—	100	100	67	67
32	24	4.16	—	4	—	16.6	—	—	8	128	8	15
Control	8	12.5	—	16	16	16	—	—	112	200	16	32
Total	—	—	41	580	461	510.6	65	31	1,778	2,385	1,379	1,242

¹ Volume corrected values are expressed as artifact/100 liters.² Baked clay, bone, shell, and charcoal are enumerated in grams; all other categories are enumerated in counts.

for classifying some features (i.e., postholes) than feature content.

Refuse Concentration

Feature 1, as stated previously, was discovered about 50 cm (19.7 in) below ground surface in Unit 21 during the testing program. It consisted of three artifact clusters spread across Unit 21 in a linear fashion from southwest to northeast, which were comprised primarily of bone,

fire-cracked rock, charred nutshell, and lithic debris (see Figure 7-2). The southern cluster measured ca. 50 x 30 cm (19.7 x 11.8 in), the next concentration was 30 x 20 cm (11.8 x 7.9 in), and the last concentration measured about 40 x 30 cm (15.7 x 11.8 in). These clusters were confined within an area measuring 165 x 40 cm (65 x 15.7 in).

Three biface fragments, six whole flakes, 24 broken flakes, and one shattered flake were recovered, as well as 7.5 g of baked clay, and 21 pieces of fire-cracked rock. The artifacts were concentrated between 40-50 cm (19.7

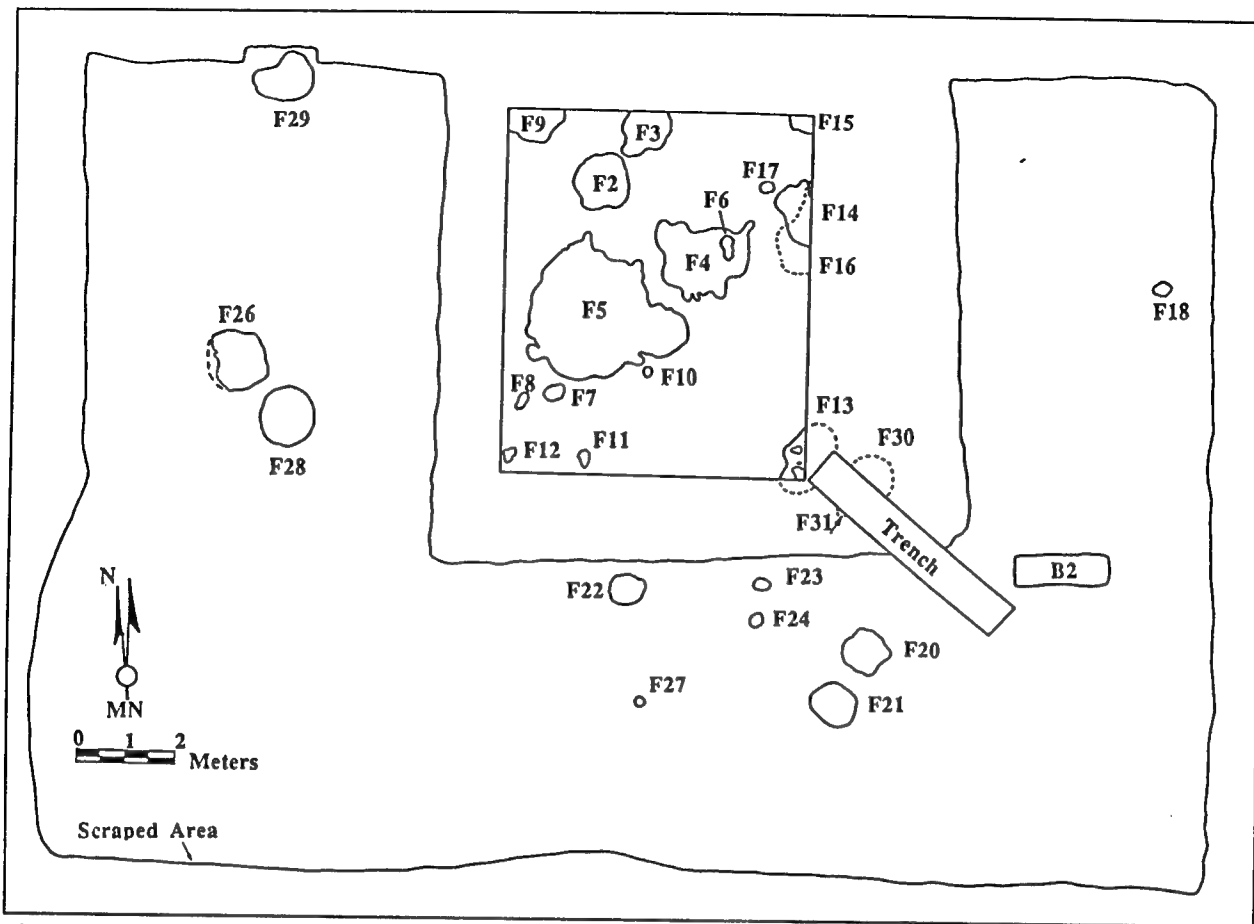


Figure 7-11. Map of cultural features at 41DT124: the Doctors Creek site.

in) below surface, within the upper 10 cm (3.9 in) of a pale brown soil zone, and their distribution conformed to the slope of the contact between this zone and the upper dark grayish brown zone. Results of geomorphological analysis suggested that the darker zone represented an alluvial or colluvial deposit. Thus, Feature 1 may have been a load of trash discarded along the old ground surface which was later covered by the darker soil layer. It was the only feature of this type observed during the course of the Doctors Creek site excavations.

Hearths

Three features were classified as hearths: Features 6, 13, and 14. All of these features were observed as concentrations of oxidized clay, ash, and charcoal at relatively shallow depths, forming thin basin-shaped lenses. In the cases of Features 6 and 14, other pits extended below these lenses. It appeared that these two hearths were intrusive into these pits (Features 4 and 16, respectively). They varied in size from 0.11 m^2 (0.4 ft^2)

for Feature 6 to ca. $0.65\text{--}1.0 \text{ m}^2$ ($2.1\text{--}3.28 \text{ ft}^2$) for Features 13 and 14.

Feature 6 was a hearth which was intrusive into Feature 4. Therefore it must have been used sometime after A.D. 990 ± 20 (SMU 1947, corrected), the date obtained from the bottom of Feature 4. It was first recognized as a roughly oval concentration of ash, baked clay, and charcoal in Unit 84, measuring ca. 25 cm (9.8 in) east-west by 45 cm (17.7 in) north-south at a depth of 22 cm (8.7 in) below surface (Figure 7-12a). The bottom of this concentration was observed at a depth of 28 cm (11 in); beneath this point, the very dark grayish brown fill of Feature 4 continued to a depth of 70 cm (27.6 in). The fill was mottled, consisting primarily of a light brown 10YR4/4 sandy loam mixed with some dark to very dark grayish brown (10YR3/2 and 3/3) sandy loam. Feature 6 contained bone, charcoal, fire-cracked rock, ash, baked clay, and some lithic debris. It has been classified as a hearth because its ash and baked clay content reflected intense *in situ* burning.

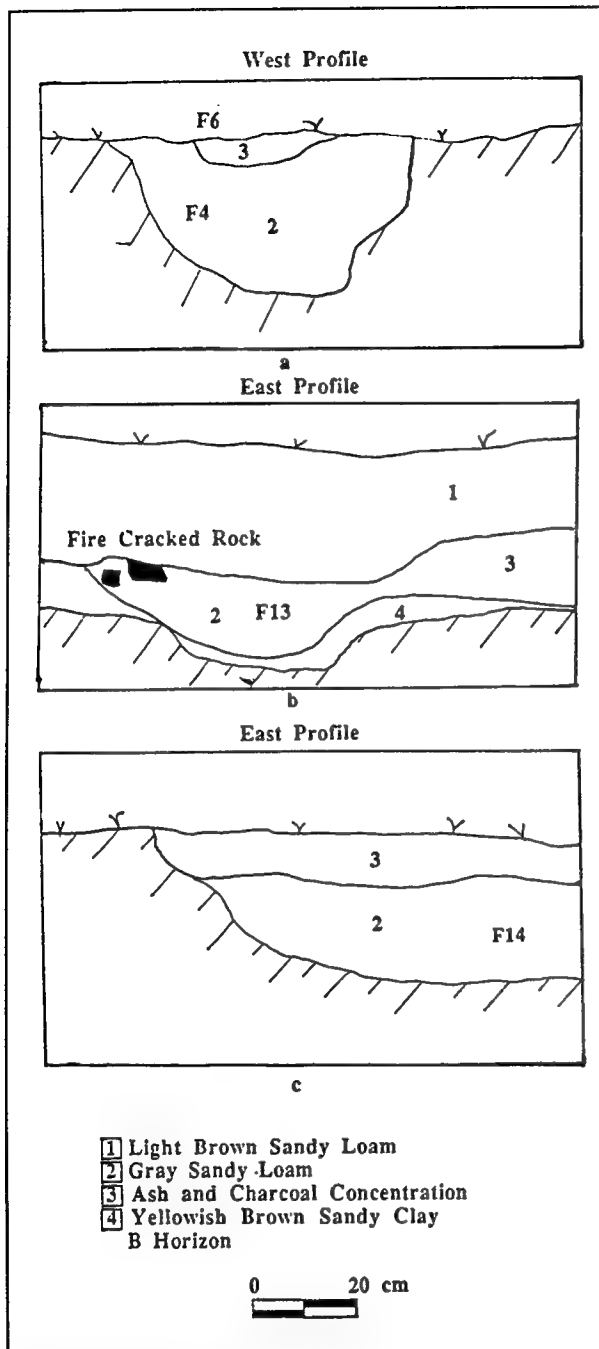


Figure 7-12. Profiles of hearths: (a) Feature 6, (b) Feature 13, and (c) Feature 14.

Feature 13 was a hearth which was first observed in Unit 104 at a depth of 21 cm (8.3 in) below surface. It extended from the south wall of the Midden Block across the entire unit and dug into the east wall. When Backhoe Trench 10 was dug adjacent to the Midden Block, the eastern edge of the hearth was exposed. The dimensions

are ca. 120 cm (47.2 in) north-south by 100 cm (39.4 in) east-west. The fill was heterogeneous, characterized by a very dark grayish brown (10YR3/2) matrix surrounding two gray (10YR6/3) ash lenses containing reddish brown (7.5YR5/6) burned clay and charcoal. In profile, the top of the ash lens in the southeast corner of Unit 104 was only about 19 cm (7.5 in) below surface, whereas the top of the feature sloped down to 30 cm (11.8 in) and leveled off there; the bottom of the pit (Figure 7-12b) extended to a depth of 47 cm (18.5 in). Approximately 55 liters of fill were recovered for flotation; and 11 liters were processed. The remaining soil was water screened through .25 in (6.4 mm) mesh. Feature 13 contained relatively small amounts of bone, fire-cracked rock, and almost no lithic debris. Concentrations of ash, baked clay, and charcoal flecks were also observed. Like Feature 6, this hearth looked very much like hearths found within structures at sites in north-central Texas (cf., Martin and Bruseth 1987a:54).

Feature 14 was another hearth which was similar to Features 6 and 13. It was observed as a lens of ash and baked clay extending out of the east wall of the Midden Block in Units 108 and 109 at a depth of 16 cm (6.3 in) below surface. Although the part of the feature outside of the Midden Block was not excavated, enough was present within the Midden Block to estimate the dimensions of the feature as ca. 120 cm (47.2 in) north-south by at least 90 cm (35.4 in) east-west. The fill was heterogeneous, characterized by a dark grayish brown (10YR3/3) matrix including small gray (10YR6/3) ash deposits and charcoal flecks with reddish brown (7.5YR5/6) burned clay (Figure 7-12c). In profile, the top of the ash lens was only ca. 16 cm below surface, whereas the bottom of the pit extended to a depth of 33 cm (13 in). From Feature 14 ca. 60 liters of fill were floated, and the remaining fill was water screened through .25 in (6.4 mm) mesh. Feature 14 contained higher quantities of baked clay, bone, and shell than did Feature 13, but both were nearly devoid of lithic debris. A sample of carbonized nutshell taken from a flotation sample of the lower portion of this pit feature was radiocarbon dated at A.D. 1190 \pm 30 (SMU 2026, corrected).

Large Pits

Fourteen of the cultural features recorded at the Doctors Creek site have been classified as large pits, that is pits larger than 0.1 m², although most were larger than 0.5 m². Of the 14 large pits recorded, six fell within the Midden Block (Features 2, 3, 4, 5, 9, 15, and 16) and the remainder (Features 20, 21, 22, 26, 28, and 29) were recorded within the mechanically scraped area, with the exception of Feature 30 which was observed within

Backhoe Trench 10. Feature 5 was much larger than the other pits, measuring ca. 4.5 m², and Feature 4 was the next largest at ca. 1.9 m².

Feature shape varied from nearly circular to oblong; most were symmetrical, but Feature 4 was somewhat asymmetrical. It was impossible to assign a function to the majority of these features, since most appeared to have been filled with refuse after they were abandoned. A few contained evidence of burning, yet did not look like the recorded hearths. These features are believed to represent roasting or baking pits.

Many of the pits encountered at 41DT124 had steeply sloping to nearly vertical walls. In some cases, the walls were actually undercut to form a slightly bell-shaped profile. A storage function is generally assigned to pits with steep to undercut walls, such as bell-shaped pits (Dickens 1985; DeBoer 1988). Although some of the pits at 41DT124 may have been used to store food, the contents of some of these pits suggest that they had been used for cooking or roasting. For instance, the presence of baked clay and charcoal, unlikely to enter into pits as discarded refuse, indicates that cooking or roasting food to preserve it for long term storage was conducted within those pits. On the basis of feature content alone, it is impossible to discern whether or not pits were used for storage unless the stored items were never used and remained preserved within the feature.

Feature 2 was a roughly circular to oval pit measuring ca. 150 cm (59 in) north-south by 130 cm (51.2 in) east-west, with steep walls undercut slightly (3 cm [1.2 in]) in some places near the base of the pit. The pit was first recognized as an organic stain below the midden in 50 x 50 cm (19.7 x 19.7 in) Unit 33, and was later fully exposed in 1 x 1 m (3.28 x 3.28 ft) Units 91, 92, 96, and 97. It was first observed at a depth of 25 cm (9.8 in) below surface, and extended down to 70 cm (27.6 in) below surface (Figure 7-13a). The fill was a very dark grayish brown (10YR3/2) sandy loam. Approximately 40 liters of fill were recovered for flotation, but only 20 liters were processed. The remaining fill was water screened through .25 in (6.4 mm) mesh. Cultural materials included arrow points (e.g., Steiner, Untyped Straight Stem, and Untyped Contracting Stem), flakes, biface fragments, and large quantities of bone, mussel shell, fire-cracked rock, baked clay, charcoal, and charred nutshell. In fact, this pit yielded higher quantities of bone, shell, fire-cracked rock, and charcoal than any other feature excavated at the site, although Features 4 and 5 had similarly high quantities.

Feature function was difficult to define. The steep, slightly undercut, pit walls suggested that Feature 2 may have been a storage pit similar to bell-shaped pits found on the Plains, and portions of the southeastern United

States. However, the contents did not reflect this assessment. The high fire-cracked rock and baked clay content of Feature 2 was similar to that of hearths and features identified as roasting pits in the Richland/Chambers Reservoir (Martin and Bruseth 1987a:54). Unlike Feature 2, roasting pits at the Richland Creek sites had very low bone and shell frequencies, but faunal preservation was better at the Doctors Creek site than at most Richland Creek sites, so this difference may not be significant. The direct evidence of burning (i.e., charcoal and baked clay) suggested that Feature 2 was used for cooking and/or roasting; the high density of faunal and floral remains might be related to cooking within the pit, but it may simply represent trash unrelated to pit use which was dumped into the pit during the fill episode. A radiocarbon date of 857 ± 28 B.P. (A.D. 1190 ± 30, SMU-2009, corrected) was obtained from charcoal in Feature 2 fill.

Feature 3 was somewhat similar in size and depth to Feature 2, but the walls of Feature 3 were not undercut. It was located only 10 cm (3.9 in) to the northeast of Feature 2 in Units 95 and 96. Although the north end of the feature extended into the north wall of the Midden Block, it was discernable as an oval to circular pit once excavation was completed. The symmetrical curvature observed along the bottom of the pit suggested that the maximum dimensions were ca. 120 cm (47.2 in) north-south by 100 cm (39.4 in) east-west. The pit was first observed at a depth of 40 cm (15.7 in) below surface and it extended down to 66 cm (26 in) below surface (Figure 7-13b). The fill was a very dark grayish brown (10YR3/2) sandy loam. All artifacts were recovered from the remaining fill which was water screened through .25 in (6.4 mm) mesh. Far fewer artifacts were recovered from Feature 3 than from Feature 2. A Steiner arrow point was recovered, suggesting that Feature 3 dated to the same period as Feature 2, but no radiocarbon date was obtained. The relatively low density of most artifact classes precluded functional assignment on the basis of content. Based on its shape, Feature 3 may have been a storage pit, but if it had been used for storage, its original contents must have been removed prior to its being filled in with general midden debris.

Feature 4 was a pit which was first recognized at a depth of 30 cm (11.8 in) below surface as an irregularly shaped organic stain measuring ca. 170 cm (66.9 in) east-west by 120 cm (47.2 in) north-south. The pit exhibited gently sloping walls until, at a depth of 60 cm (23.6 in), it formed a roughly circular pit with vertical walls and a diameter of 90 cm (35.4 in). Feature 4 was encompassed by Units 79, 80, 84, and 85. Maximum depth was 70 cm

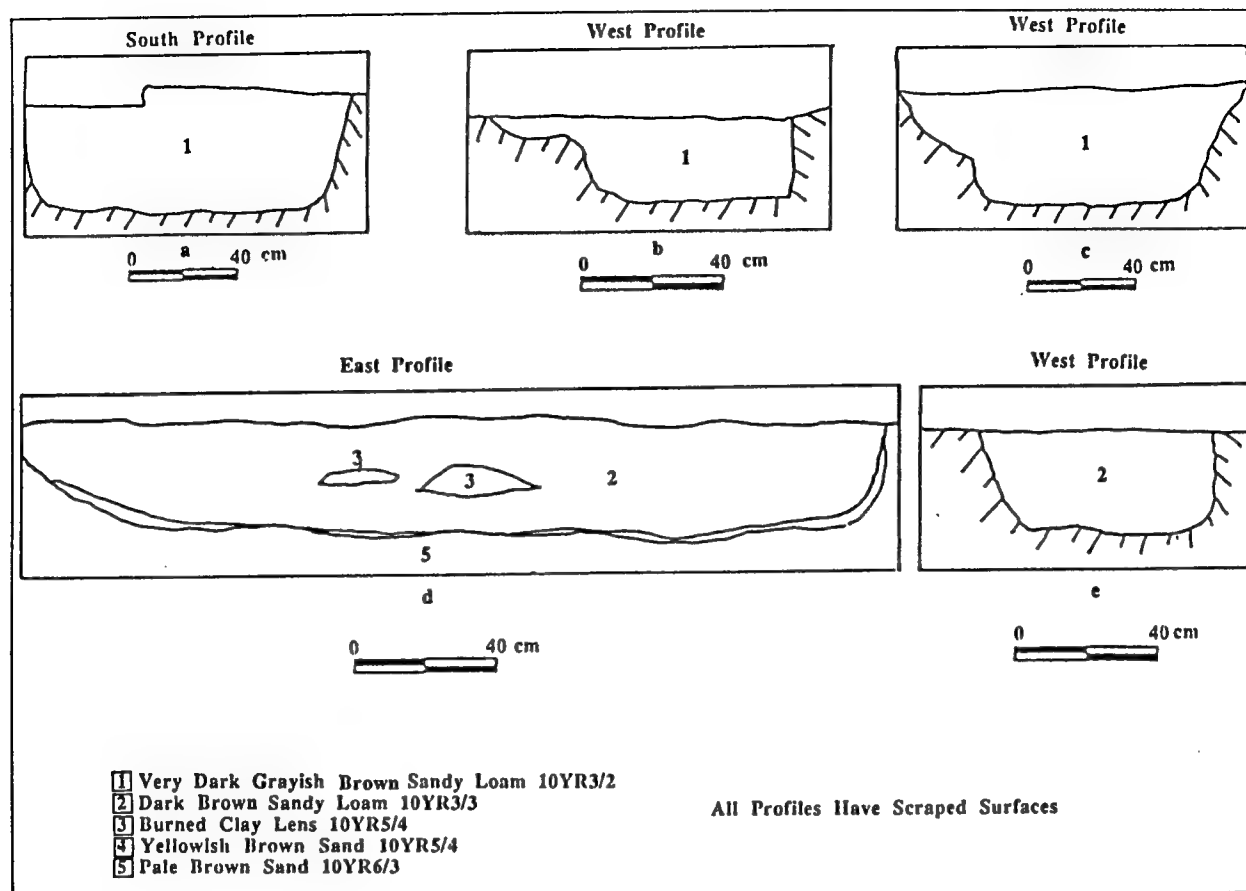


Figure 7-13. Profiles of large pits: (a) Feature 2, (b) Feature 3, (c) Feature 4, (d) Feature 9, and (e) Feature 5.

below surface, and the pit fill was a very dark grayish brown (10YR3/2) sandy loam (Figure 7-13c). A unique aspect of Feature 4 was that it contained an intrusive feature, Feature 6, in its northeastern quarter (within Unit 84). Feature 6, which appeared to be a hearth, was excavated separately. After it was removed, excavation of Feature 4 proceeded. From Feature 4 ca. 40 liters of matrix were recovered for flotation: 20 from the upper half of the pit and 20 from the bottom. The remaining fill (ca. 520 liters) was water screened through .25 in (6.4 mm) mesh. Cultural materials included arrow points (Alba-like, Friley-like, Steiner, and untyped expanding stem), flakes, and large quantities of bone, mussel shell, fire-cracked rock, baked clay, charcoal, and charred nutshell.

A radiocarbon date of A.D. 990 \pm 20 (SMU-1947, corrected) was obtained from carbonized seeds taken from the pit fill. The uncorrected date was 1050 \pm 30 B.P. (SMU-1947). This pit may have been used as a roasting pit; some of its contents (i.e., ash, baked clay, and charcoal) provide evidence for burning which was probably associated with cooking or roasting. The bone

and mussel shell probably represent refuse discarded into the pit after it was no longer in use.

Feature 5 was a very large pit which was first recognized at a depth of 30 cm (11.8 in) below surface as a roughly circular organic stain measuring ca. 310 cm (122 in) east-west by 275 cm (108.3 in) north-south. The feature was encompassed by portions of Units 72, 75, 76, 77, 78, 81, 82, 83, 86, and 87. Maximum depth was 57 cm (22.4 in) below surface, and the pit fill was a dark grayish brown (10YR3/3) sandy loam. In plan view, an eastern lobe of the feature was observed which may have been a separate pit dug into the original pit. In fact, one might argue that the large size of the feature could have been caused by a series of smaller pits excavated in the same part of the site over a long period of time, resulting in the impression that a single large pit had been dug. However, the regular symmetry of the pit in both plan view and profile suggest that it was excavated in a single episode, with the possible exception of the eastern lobe. Aside from the eastern lobe, the plan view is nearly circular; this smooth pit outline would be an unlikely result of the

random excavation of a series of pits. In profile (Figure 7-13d), the pit walls were very steep and the floor of the pit was very flat. If a series of pits had been responsible for the observed pit, the bottom probably would have been undulating, since different pits most likely would have been excavated to slightly different depths at various points in time.

Units 77 and 82, entirely within Feature 5, were excavated in 10 cm (3.9 in) levels to the bottom of the pit. Then the portions of the feature present in Units 72 and 87 were excavated, creating a north-south trench 1 m (3.28 ft) wide and 2.7 m (8.86 ft) long through the middle of the pit. From Feature 5 ca. 190 liters of fill were recovered for flotation: 60 liters from Unit 72, 40 from Unit 77, 20 from Unit 78, 10 liters from Unit 81, 40 from Unit 82, and 20 from Unit 87. However, only 60 liters were processed: 20 from Unit 78 and 40 from Unit 82. The remaining fill was water screened through .25 in (6.4 mm) mesh, with the exception of fine screen samples from levels 1-3 in Units 77 and 82 which were screened through window screen.

Cultural materials recovered from Feature 5 included arrow points (e.g., Alba-like, Friley-like, Steiner, and Untyped Straight Stem); a dart point (e.g., Gary); fire-cracked rock; flakes; sherds; and sizable quantities of baked clay, bone, mussel shell, charcoal, and charred nutshell. Although artifact frequencies were similar to those recovered from Features 2 and 4, the volume of fill processed from Feature 5 was far greater than from Features 2 and 4, so it contained lower densities for all artifact classes. Temporally, Feature 5 was similar to Feature 4 with a radiocarbon date of 960 ± 30 B.P. (A.D. 1070 ± 60 , SMU 1948, corrected). This date was obtained from charred nutshell found in the bottom of the pit. The east profile of the trench revealed two baked clay lenses in Feature 5 (Figure 7-13d). The large size of the pit coupled with the high density of baked clay, substantial quantity of fire-cracked rock, and large quantities of charred nutshell, tuber, and other plant remains, suggested that Feature 5 may have been a roasting pit similar to those documented in the Richland Creek area (Martin and Bruseth 1987a:54).

Feature 9 was a pit in the northwest corner of the Midden Block that was similar in size to Features 2 and 3. It was located ca. 70 cm (27.56 in) to the northwest of Feature 2 and ca. 110 cm (43.3 in) west of Feature 3. The symmetrical curve at the bottom of the pit suggested that the shape may have been similar to that of Features 2 and 3. The walls of Feature 9 were quite steep, but they were not undercut, so the pit shape in profile was closer to that of Feature 3. The north and west ends of the feature extended into the north and west walls of the Midden Block. The pit was first observed at a depth of 40 cm

(15.7 in) below surface, and it extended down to 70 cm (27.56 in) below surface (Figure 7-13e). The fill was a very dark grayish brown (10YR3/2) sandy loam. All artifact data were quantified from the remaining fill which was water screened through .25 in (6.4 mm) mesh. The contents and artifact density of Feature 9 were strikingly similar to those of Feature 3. Artifacts included arrow points (e.g., Steiner and untyped fragments), biface fragments, an endscraper, marginally modified unifacial tools, and quantities of baked clay, bone, and mussel shell. A radiocarbon date of 1020 ± 30 B.P. (A.D. 1000 ± 20 , SMU 1957, corrected) was obtained from charred nutshell found in the bottom of the pit.

Feature 15 was very indistinct and difficult to define because of rodent activity. It was observed in the northeast corner of the Midden Block as a tan, compacted sandy loam containing bits of charred nutshell. It has been included with the large pits, even though its full dimensions are unknown, because the exposed portion extended 35 cm (13.8 in) south and 50 cm (19.7 in) west of the northeast corner. In Unit 110 the feature matrix occurred from 30-55 cm (11.8-21.6 in) below surface. From Feature 15 ca. 20 liters of fill were recovered for flotation, while the remaining 50 liters were water screened. A relatively high frequency of baked clay was recovered along with moderate amounts of fire-cracked rock, bone, and mussel shell, and small quantities of charred plant remains. The function of this pit is unknown.

Feature 16 was first observed in Units 108 and 109 beneath Feature 14. It appeared as a dark stain below the ash and baked clay lens of Feature 14, but its shape did not conform to that of Feature 14 (see Figure 7-11). Rather, it extended further south, and its north half was much closer to the east wall of the Midden Block than was Feature 14. The portion of the stain exposed in Units 108 and 109 measured 175 cm (68.9 in) north-south by 65 cm (25.6 in) east-west. Maximum depth of the dark grayish brown (10YR3/3) sandy loam fill was 40 cm (15.7 in) below surface, but excavation continued down to 54 cm (21.26 in) below surface, into Zone 2, because some artifacts were still observed. From Feature 16 ca. 20 liters of fill were floated. Artifacts included small quantities of lithic debris, bone, and mussel shell, and moderate quantities of fire-cracked rock. Since the Feature 16 deposit was only about 5 cm (2 in) thick, it is possible that Feature 16 may actually represent a dip in the contact between the midden and the light brown Zone 2 matrix rather than an actual pit. It is also possible that Feature 16 was used as a hearth, and that the upper deposit labeled

Feature 14 was simply a later episode of burning conducted within this hearth.

Feature 20 was an oval, almost circular, basin-shaped pit measuring 90 cm (35.4 in) east-west by 92 cm (36.2 in) north-south which was found in the scraped area south of the Midden Block near S30 E20. The scraped surface was about 42 cm (16.5 in) below the original ground surface, and the bottom of the pit was about 58 cm (22.8 in) below original ground surface. Feature fill was a very dark gray (10YR3/1) sandy loam. The east half of the feature was excavated and floated (nearly 40 liters), yielding fire-cracked rock, charcoal, baked clay, mussel shell, and several bone fragments. The pit profile revealed gently sloping walls, rather than the steep to undercut walls observed in many other features (Figure 7-14a). No conclusions regarding the functional significance of this shape can be reached at this time, but based on content, it appears that this pit may have been used for cooking or roasting.

Feature 21 was another nearly circular, basin-shaped pit measuring 90 cm (35.4 in) east-west by 85 cm (33.5 in) north-south that was almost identical to Feature 20. It was found only 50 cm (19.7 in) southwest of Feature 20 in the scraped area south of the Midden Block near S30 E20. The scraped surface was ca. 40 cm (15.7 in) below the original ground surface, and the bottom of the pit was ca. 60 cm (23.6 in) below original ground surface. Feature fill was a dark grayish brown (10YR3/3) sandy loam. The western half of the feature was excavated and floated (ca. 40 liters), yielding very few artifacts. The quantities of charcoal, mussel shell, baked clay, and fire-cracked rock found in Feature 21 were less than those recovered from the same amount of fill taken from Feature 20. Like Feature 20, the pit profile revealed gently sloping walls, rather than the steep to undercut walls observed in many other features (Figure 7-14b). However, the bottom of the pit was more irregular and undulating than that of Feature 20.

Feature 22 was an oval, basin-shaped pit measuring 70 cm (27.26 in) east-west by 60 cm (23.6 in) north-south that was found in the scraped area south of the Midden Block. Depth of the scraped surface was ca. 40 cm (15.7 in) below the original ground surface, and the bottom of the pit was ca. 51 cm (20.1 in) below original ground surface. Feature fill was a very dark grayish brown (10YR3/2) sandy loam. The southern half of the feature was excavated and floated (ca. 24 liters) yielding charcoal, fire-cracked rock, baked clay, lithic debris, and several bone fragments. The pit profile revealed gently sloping walls, rather than the steep to undercut walls

observed in many other pit features (Figure 7-14c). Since postholes (i.e., Features 11, 12, 23, 24, and 27) were present within a 3 m (9.8 ft) radius of this pit, it is tempting to infer that Feature 22 was a hearth within a structure. However, no clear spatial patterning indicative of house walls exists among the postholes. Therefore, this inference remains only a possibility.

Feature 26 was an oval, almost circular, basin-shaped pit measuring 120 cm (47.2 in) east-west by 110 cm (43.3 in) north-south that was found in the scraped area west of the Midden Block. The scraped surface was ca. 30 cm (11.8 in) below the original ground surface, and the bottom of the pit was ca. 47 cm (18.5 in) below original ground surface. Feature fill was a very dark grayish brown (10YR3/2) sandy loam. The southern half of the feature (ca. 40 liters) was excavated and floated. The pit profile revealed the steep, vertical walls and flat bottom observed in many other features at this site (Figure 7-14d). The pit was bisected by a very large animal burrow that extended nearly 10 m (32.8 ft) in a roughly north-south orientation in the scraped area west of the Midden Block. Therefore, considerable burrowing disturbance was noted in the fill. Sizable quantities of lithic debris, fire-cracked rock, baked clay, bone, and mussel shell were recovered. In addition, Feature 26 contained one of the highest densities of charred hickory nutshell and other plant remains found anywhere on the site, second only to Feature 30.

Feature 28 was an almost circular, basin-shaped pit measuring 104 cm (40.9 in) east-west by 110 cm (43.3 in) north-south that was found in the scraped area west of the Midden Block. The scraped surface was ca. 30 cm (11.8 in) below the original ground surface, and the bottom of the pit was ca. 39 cm (15.35 in) below original ground surface. Feature fill was a very dark grayish brown (10YR3/2) sandy loam with some yellowish brown (10YR4/6) mottling (Figure 7-14e). The southern half of the pit was excavated, and 35 liters of matrix were collected for flotation. The western edge of the pit was intersected by the same large animal burrow in Feature 26 that extended nearly 10 m (32.8 ft) in a roughly north-south orientation throughout the scraped area west of the Midden Block. Considerable rodent disturbance was observed within the pit fill. A moderate amount of baked clay, lithic debris, fire-cracked rock, and mussel shell was recovered, but no bone was found.

Feature 29 was a basin-shaped pit with an irregular, but roughly oval outline, measuring 120 cm (47.2 in) east-west by 100 cm (39.4 in) north-south. It was found in the scraped area west of the Midden Block, at the northern edge of the scraped area. Part of the feature was exposed

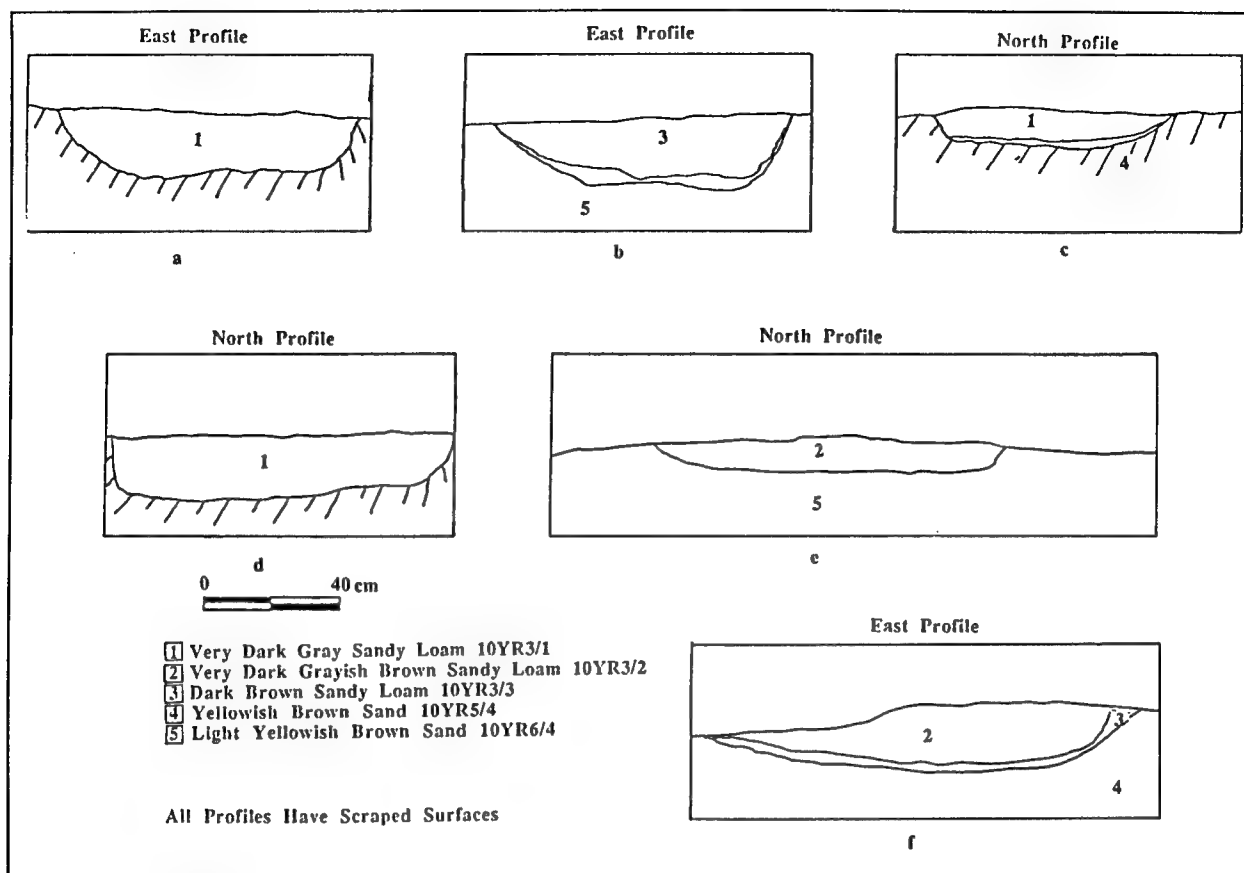


Figure 7-14. Profiles of large pits: (a) Feature 20, (b) Feature 21, (c) Feature 22, (d) Feature 26, (e) Feature 28, and (f) Feature 29.

by hand excavation with a shovel because it extended north of the bulldozed area. The scraped surface was ca. 30 cm (11.8 in) below the original ground surface, and the bottom of the pit was ca. 49 cm (19.3 in) below original ground surface. Feature fill was a very dark grayish brown (10YR3/2) sandy loam. The southern half of the feature was excavated, and 48 liters were floated. The pit profile was too shallow to determine the shape or slope of the walls, but the east end of the profile suggested that they may have been nearly vertical (Figure 7-14f). An Archaic dart point (Elam) was found on the scraped surface immediately north of the pit, and fragments of deer antler were found within the pit. Nothing but bone and antler were recovered from the .25 in (6.4 mm) mesh, but several tiny flakes, fragments of fire-cracked rock, and baked clay were recovered from flotation.

Feature 30 was found when Backhoe Trench 10 was dug from the edge of the Midden Block toward the southeast to permit geomorphological studies to be conducted. The feature was observed in the northeast wall as a deep vertical-walled pit with a flat bottom, similar to

Feature 2 and other steep-walled pits observed at this site. Its full dimensions are unknown, since it was only exposed in profile. It was 70 cm (27.56 in) wide at the interface of the midden (Zone 1) and the light brown sandy loam (Zone 2), and was 80 cm deep. The fill was a very dark grayish brown (10YR3/2), except for a light gray ash lens. The ash lens, present in the southern half of the pit 35-45 cm (13.8-17.7 in) below surface, was 45 cm (17.7 in) long and 10 cm (3.9 in) thick at its widest point (Figure 7-15). From Feature 30 ca. 20 liters of fill were removed from the lower portion of the profile for flotation. The artifacts included high densities of baked clay, bone, and charcoal; more than that found in any feature at the site, and a moderate amount of fire-cracked rock and lithic debris. Feature 30 yielded the highest density of charred plant remains found anywhere on the site.

Postholes

Twelve features were classified as postholes, on the basis of size and shape in plan view and profile. These

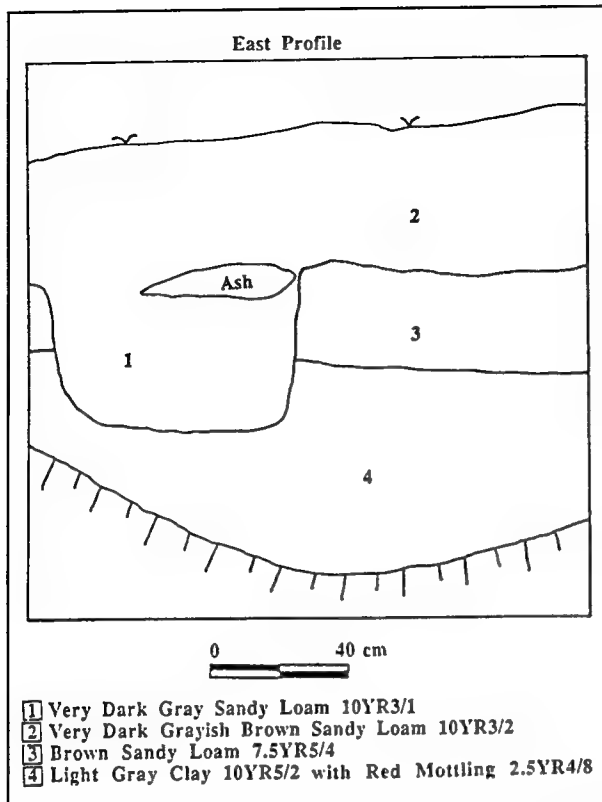


Figure 7-15. Profile of Backhoe Trench 10 showing Feature 30 at 41DT124: the Doctors Creek site.

small pits were all less than 0.1 m² (0.3 ft²) in area. All but one of these features were concentrated at the south end of the Midden Block, extending southward into the mechanically scraped area. The exception, Feature 18, was located in the scraped area east of the Midden Block, but it turned out to be the result of root disturbance rather than a cultural feature. In general, these pits had minimal artifact densities. This is not surprising, considering that the function of these small pits was to hold posts in place, and any artifacts present in the fill entered by means of secondary deposition processes.

Feature 7 was a posthole that was first recognized at a depth of 20 cm (7.9 in) below surface as an oval organic stain measuring ca. 30 cm (11.8 in) east-west by 27 cm (10.6 in) north-south. The feature was located 20 cm (7.9 in) south of Feature 5, and was bisected by Units 72, and 73. Maximum depth was 45 cm (17.7 in) below surface, and the fill was a very dark grayish brown (10YR3/2) sandy loam. The lower 12 cm (4.7 in) of the feature tapered down to a diameter of about 8 cm (3.1 in) at the bottom, a profile typical of many postholes (Figure 7-16a). From Feature 7 ca. 20 liters of matrix were floated, and the remaining fill was water screened through .25 in

(6.4 mm) mesh. The fill was practically devoid of cultural materials; only a few flakes, four fragments of fire-cracked rock, and small quantities of bone, baked clay, and shell were recovered.

Feature 8 was another posthole recognized at a depth of 20 cm (7.9 in) below surface as an oval organic stain measuring ca. 34 cm (13.4 in) northeast-southwest by 15 cm (5.9 in) northwest-southeast. The feature was located 40 cm (15.7 in) west of Feature 7 in Unit 73. Maximum depth was 46 cm (18.1 in) below surface, and the fill was a very dark gray (10YR3/1) sandy loam. The lower 10 cm (3.9 in) of the feature tapered down to a point at the bottom, a profile typical of postholes (Figure 7-16b). From Feature 8 ca. 20 liters of matrix were recovered for flotation, and the remaining fill was water screened through .25 in (6.4 mm) mesh. Like Feature 7, the fill was practically devoid of cultural materials; only one flake, an arrow point preform, and small quantities of bone, baked clay, and shell were recovered. Matrix samples were taken but were not floated due to few botanical remains.

Feature 10 was an organic stain measuring ca. 17 cm (6.7 in) in diameter that was first recognized at a depth of 30 cm (11.8 in) below surface. The feature was located 20 cm (7.9 in) south of Feature 5, and was bisected by Units 71, and 76 (Figure 7-16c). Maximum depth was 37 cm (14.6 in) below surface, and the fill was a very dark grayish brown (10YR3/2) sandy loam. The profile was relatively shallow and basin-shaped, rather than tapering. This may have been the very bottom of a posthole, but positive identification was impossible.

Feature 11 was a posthole measuring ca. 30 cm (11.8 in) north-south by 22 cm (8.7 in) east-west. The feature was located in Unit 102 ca. 15 cm (5.9 in) north of the south wall of the Midden Block (Figure 7-16d). It was first recognized at a depth of 30 cm (11.8 in) below surface, and maximum depth was 37 cm (14.6 in) below surface. The fill was a dark grayish brown (10YR3/3) sandy loam. The profile was relatively shallow and basin-shaped. From Feature 11 ca. 3 liters of matrix were recovered for flotation, and yielded only one small flake, 14 tiny (i.e., less than 2.5 mm) fragments of fire-cracked rock, and very small quantities of bone and shell.

Feature 12 was another posthole. It was first observed at a depth of 30 cm (11.8 in) below surface as a roughly oval organic stain measuring ca. 18 cm (7.1 in) north-south by 20 cm (7.9 in) east-west. The feature was located near the southwest corner of the Midden Block in Unit 103, near an area of rodent disturbance. Maximum depth was 41 cm (16.1 in) below surface, and the fill was

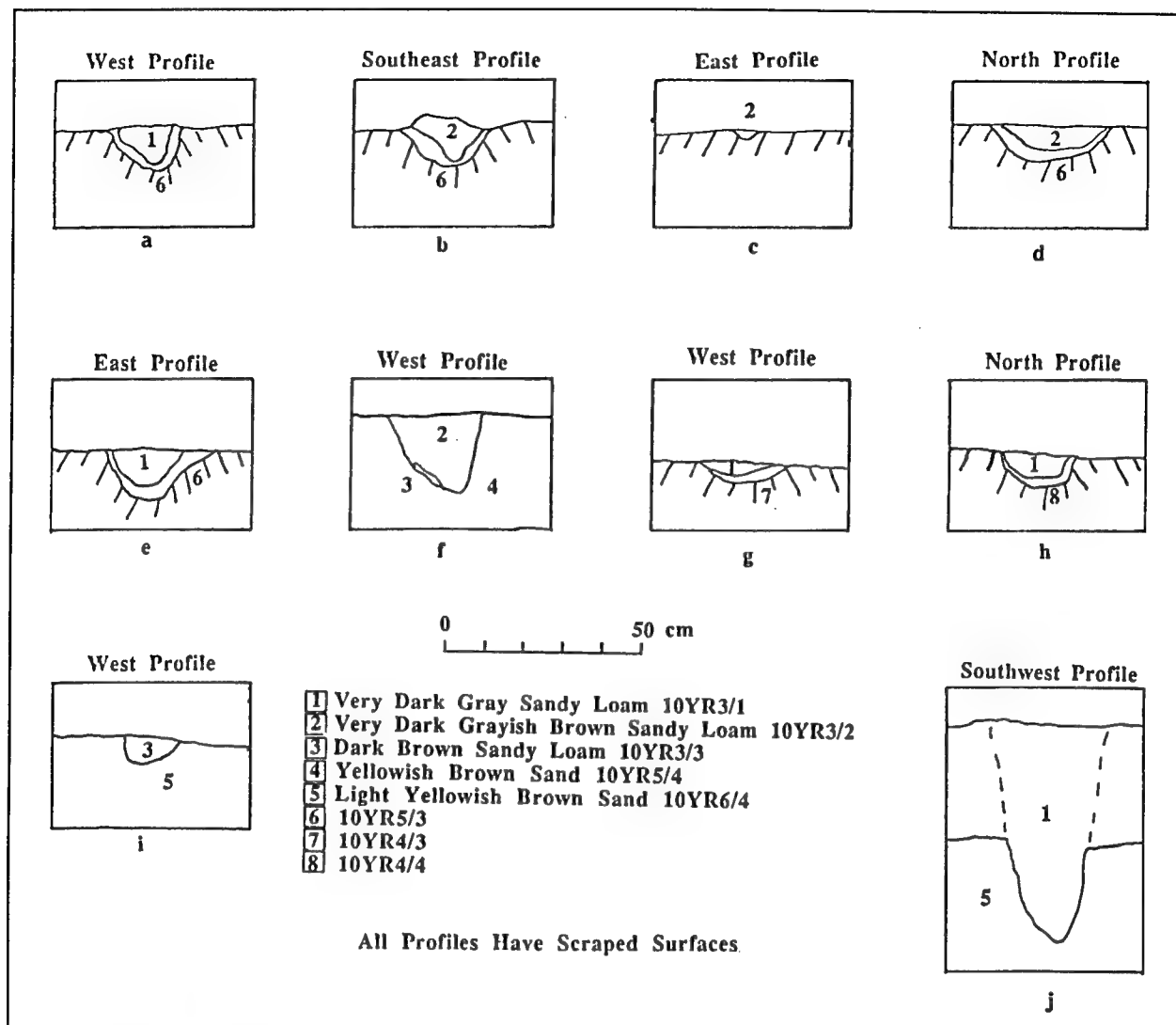


Figure 7-16. Profile of postholes: (a) Feature 7, (b) Feature 8, (c) Feature 10, (d) Feature 11, (e) Feature 12, (f) Feature 17, (g) Feature 23, (h) Feature 24, (i) Feature 27, and (j) Feature 31.

a dark grayish brown (10YR3/3) sandy loam. The lower 6 cm (2.4 in) of the feature tapered down to a point at the bottom in the fashion typical of postholes (Figure 7-16e). From Feature 12 ca. 3 liters of matrix were recovered for flotation, which contained small amounts of bone and shell.

Feature 17 was an organic stain measuring ca. 20 cm (7.9 in) north-south by 25 cm (9.8 in) east-west that was first recognized at a depth of 30 cm (11.8 in) below surface in Unit 109. Maximum depth was 49 cm (19.3 in) below surface, and the fill was a very dark grayish brown (10YR3/2) sandy loam. The lower 10 cm (3.9 in) of the feature tapered down to a point at the bottom, a profile typical of postholes (Figure 7-16f). However, intensive

rodent burrowing activity was observed in the northeast corner of the Midden Block, so it is possible that this feature was part of a rodent burrow. From Feature 17 ca. 10 liters of matrix were recovered for flotation that yielded lithic debris, fire-cracked rock, bone, mussel shell, and baked clay.

Feature 18 was an organic stain measuring ca. 25 cm (9.8 in) north-south by 32 cm (12.6 in) east-west that was first recognized at a depth of about 30 (11.8 in) cm below surface in the scraped area east of the Midden Block. Maximum depth was 60 cm (23.6 in) below original ground surface, and the fill was a very dark gray (10YR3/1) sandy loam that contained charcoal flecks. The lower 10 cm (3.9 in) of the feature tapered down to a

point at the bottom, a profile often associated with postholes. However, a root was observed in the lower portion of the profile. Nothing was recovered from 10 liters of matrix recovered for flotation. It appears that Feature 18 was actually a root disturbance, and not a cultural feature.

Feature 23 was a posthole measuring ca. 30 cm (11.8 in) east-west by 23 cm (9.06 in) north-south that was observed on the scraped surface at a depth of 40 cm (15.7 in) below original ground surface. The feature was located ca. 40 cm (15.7 in) south of the balk at the south end of the Midden Block and ca. 2 m (6.6 ft) east of Feature 22. Maximum depth was only 43 cm below surface, and the fill was a dark grayish brown (10YR3/3) sandy loam (Figure 7-16g). The profile was very shallow and basin-shaped, rather than tapering. A very small quantity of charcoal and bone was observed in the fill during excavation.

Feature 24 was another posthole measuring ca. 19 cm (7.5 in) east-west by 30 cm (11.8 in) north-south, which was observed on the scraped surface at a depth of ca. 40 cm (15.7 in) below original ground surface. The feature was located ca. 48 cm (18.9 in) south of Feature 23 and ca. 2 m (6.6 ft) southeast of Feature 22. Maximum depth was only 45 cm (17.7 in) below surface, and the fill was a dark grayish brown (10YR3/3) sandy loam. The profile was shallow and basin-shaped (Figure 7-16h). A very small quantity of charcoal and bone was observed in the fill during excavation. Matrix samples were taken but not floated due to few botanical remains.

Feature 25 was a circular organic stain in plan view. In profile it proved to be a root disturbance rather than a cultural feature. Therefore, no measurements were taken.

Feature 27 was another posthole measuring ca. 16 cm (6.3 in) in diameter that was observed on the scraped surface at a depth of ca. 35 cm (13.8 in) below original ground surface. The feature was located ca. 2 m (6.6 ft) south of Feature 22. Maximum depth was about 43 cm (16.9 in) below surface, and the fill was a very dark grayish brown (10YR3/2) sandy loam (Figure 7-16i). The profile exhibited the steep walls characteristic of postholes.

Feature 31 was also observed in Backhoe Trench 10 along the southwest wall opposite Feature 30. This feature was a posthole with a classic tapering profile. It measured 23 cm (9.06 in) at the intersection of the midden (Zone 1) and the light brown sandy loam (Zone 2), and was 56 cm (22.05 in) deep (Figure 7-16j). The fill was a very dark

grayish brown (10YR3/2). From Feature 31 ca. 10 liters of fill were collected for flotation. The sample contained only a very small quantity of baked clay, bone, and mussel shell.

Grave Pits

Only two graves were encountered during testing and intensive excavation at the Doctors Creek site. Feature 19 was the grave for Burial 2 and Feature 32 was the grave for Burial 1. Both burials were carefully excavated and stored in a respectful manner for transport to the Bioanthropological Laboratory at the University of Arkansas (see Appendix C). The portions of the site with the greatest concentrations of materials, the deepest deposits, and the best bone preservation were thoroughly examined. These are the areas where burials are most likely to be preserved, so a responsible effort to locate all burials was made.

Feature 19 was the rectangular grave pit associated with Burial 2, an extended burial. It was found in the scraped area ca. 4 m (13.1 ft) southeast of the Midden Block, situated between E23 and E25 (see Figure 7-12). The dimensions at a depth of ca. 40 cm (15.7 in) below original ground surface were 181 cm (71.3 in) east-west by 76 cm (29.9 in) north-south. Grave fill was a grayish brown (10YR3/3) sandy loam changing to an orange brown sandy clay along the bottom half of the skeleton. Apparently, the grave was dug down to the sandy clay B horizon; ca. 54 cm (21.3 in) below original ground surface. In addition to a 20 liter float sample, ca. 135 liters of fill were fine screened to recover bone fragments. An additional 320 liters were processed through 6.4 mm (.25 in) mesh. Virtually nothing, aside from charcoal, was recovered from this, and only one flake, two fragments of fire-cracked rock and small amounts of baked clay and bone were recovered from flotation. For further information, refer to the discussion of Burial 2 below.

Feature 32 was the number assigned to the grave pit for Burial 1 in Units 21, 66, and 68. This grave pit, which was first noticed in the east profile of Unit 21 (see Figure 7-3), was very difficult to see in plan view. It appeared to be oval, ca. 90 cm (35.4 in) east-west by 70 cm (27.6 in) north-south; the pit was first observed at a depth of 60 cm (23.6 in) below surface, and the bottom of the grave was 95 cm (37.4 in) below surface. The fill was a very dark grayish brown (10YR3/2) grading toward brown (10YR4/3). An aborted biface shaped like a Gary point and an untyped, expanding stem arrow point were found in the fill along with two flakes and some charcoal flecks. Other cultural materials found in the grave fill included a

cluster of fire-cracked rock along the south edge of the grave at 88 cm (34.6 in) below surface. For additional information, refer to the discussion of Burial 1 below.

Burials

Both human burials were uncovered during the course of testing and intensive excavations. Burial 1 was located in the deep deposit north of the midden, adjacent to the floodplain, and Burial 2 was found in the mechanically scraped area to the southeast of the Midden Block. The osteological analysis is presented in Appendix C.

Burial 1 was a flexed burial that was first found in Unit 21 at a depth of 82 cm (32.3 in) below surface; during the intensive excavations, it was fully exposed in Units 66 and 68. The skeleton had been placed in a grave pit (Feature 32) that was difficult to see in plan view, although it was visible in profile. The maximum dimensions of the skeleton were 79 cm (31.1 in) east-west by 53 cm (20.9 in) north-south. Vertically, the skeleton was situated between 70-95 cm (27.6-37.4 in) below surface, for a maximum thickness of 25 cm (9.8 in). Many of the bones had decomposed completely, including all of the ribs and most of the spinal column; only the cranium, long bones, and a few fragments of pelvis, vertebrae, and tarsals were preserved. All of these bones were in fragile condition. Two projectile points were recovered from the grave fill during excavation: a Gary point from the abdominal area, and an untyped, expanding stem arrow point from the back of the cranium. Neither of these points was embedded in any of the bones, so no conclusions may be drawn as to their role in the demise of the individual. Other cultural materials found in the grave fill included a cluster of fire-cracked rock along the south edge of the grave at 88 cm (34.6 in) below surface. Osteological analysis indicates that this individual was an adult male over 50 years old at time of death (see Appendix C).

Burial 2 was an extended burial found in Feature 19, a rectangular grave pit. This burial was much shallower than Burial 1, with the top of the skull at a depth of only 42 cm (16.5 in) below surface, and the base of the pelvis at about 54 cm (21.3 in) below surface. The cranium had been partially flattened by the weight of the grave fill, so originally it would have been even closer to the surface. The maximum dimensions of the skeleton were 170 cm (66.9 in) east-west by 44 cm (17.3 in) north-south. The burial was remarkably complete and fairly well preserved; only the left foot was missing. None of the bones had decomposed completely; even the ribs, carpals, and tarsals were preserved. No grave goods were recovered; only

flakes, fire-cracked rock, and other debris common throughout the midden were present in the grave fill. Osteological analysis indicated that this individual was a female between 17-19 years old at time of death (see Appendix C).

SITE CHRONOLOGY

Radiocarbon Determinations

Radiocarbon samples from seven contexts were submitted for analysis: five from the Midden Block and two from the Burial Block. Dates from the four features within the Midden Block revealed that most of the activity responsible for the formation of the midden and features took place during the Early Caddoan period, whereas dates from the deep deposit demonstrated that some degree of earlier occupation occurred on this portion of the site during the Early Ceramic period.

Features 2 and 14 both yielded dates of A.D. 1190 \pm 30 (SMU 2009 and SMU 2026, corrected). Feature 4 yielded a date of 1050 \pm 30 B.P. (A.D. 990 \pm 20, SMU 1947, corrected) from carbonized seeds taken from the pit fill. A date of 960 \pm 30 B.P. (A.D. 1070 \pm 60, SMU 1948, corrected) was obtained from charred nutshell recovered from the bottom of Feature 5. Feature 9 yielded a date of 1020 \pm 30 B.P. (A.D. 1000 \pm 20, SMU 1957, corrected). This date was obtained from charred nutshell found in the bottom of the pit. It is nearly identical to the date recovered from Feature 4, and it is well within the range estimated for Feature 5.

The relatively small standard deviations associated with all of these dates indicate that they are reliable indicators of site occupation. Without considering the standard deviations, the maximum difference between the corrected dates was 199 years. Even when standard deviations are included, the radiocarbon date range for all features sampled in the Midden Block fell within a relatively narrow span of time, with a maximum spread at the 95% confidence level of 248 years (A.D. 973-1221). Therefore, the radiocarbon dates demonstrate that much of the deposit within the midden accumulated during a span of less than 250 years in the Early Caddoan period.

Radiocarbon dates recovered from upper and lower levels within the Burial Block provided some evidence, albeit tenuous, for vertical separation of components. A date of A.D. 540 \pm 200 (SMU 1946, corrected) was obtained from charcoal in Level 9 of Unit 66, and a date of A.D. 740 \pm 180 (SMU 1936, corrected) was obtained from charred nutshell in Level 4 of Unit 65. The dates followed a logical chronological sequence, with the oldest date in Level 9 and the youngest date in Level 4, suggesting that there was some degree of cultural

stratigraphy within the deep deposit. Unfortunately, the radiocarbon samples obtained from the Burial Block were very small, yielding dates with large standard deviations. The temporal ranges at the 95% confidence level were A.D. 84-931 and A.D. 396-1135, respectively. These broad temporal ranges at the 95% confidence level precluded precise estimates of site occupation for upper and lower components. Because these ranges overlapped, it was impossible to determine the amount of time separating the deposition of materials in the lower levels from the upper levels.

The radiocarbon dates appear to place the primary component at the Doctors Creek site during the Early Caddoan period. They also suggest that some degree of separation of components was discernible within the aggrading deep deposit adjacent to the floodplain, even though the standard deviations for dates from that context were too wide to be useful for narrowing down the chronological separation.

Chronology Of Projectile Point Types

Features 2, 4, 5, and 9 were the only well-dated contexts in which projectile points were recovered. Although projectile points may have never been used in connection with the primary function of many features, such as hearths or roasting pits, it is assumed that they entered the feature fill either accidentally during the use of the feature, or in post-dated refuse used to fill in the feature. Therefore, it is assumed that projectile points associated with features can be fairly well-dated by charred materials recovered from those features.

Feature 2, dated at A.D. 1190 ± 30 (SMU 2009, corrected), contained a Steiner point, an untyped, straight stem point, and an untyped contracting stem arrow point. Feature 4, dated at A.D. 990 ± 20 (SMU 1947, corrected), contained an Alba-like point, a Steiner point, a Friley-like point, and an untyped expanding stem arrow point. Feature 5, dated at A.D. 1070 ± 60 (SMU 1948, corrected), contained two Gary points (one with light grinding on the stem), an Alba-like point, a Friley-like point, a Steiner point, and an untyped expanding stem arrow point. Feature 9, dated at A.D. 1000 ± 20 (SMU 1957, corrected), contained a Steiner point. The dates associated with Alba-like, and Friley-like points at the Doctors Creek site fell within the middle to upper ranges published for these types. Alba points range between A.D. 800-1200 (Turner and Hester 1985:163), and Friley points have been dated between A.D. 700-1100 (Turner and Hester 1985:168). Several of the dart and arrow point types recognized at the Doctors Creek site were not found in dated contexts, so traditional references for Texas and

Oklahoma were used to make inferences about their age (Suhm and Jelks 1962; Turner and Hester 1985; Bell 1958, 1960; Perino 1968, 1971).

The earliest occupation at the Doctors Creek site was marked by the presence of an untyped straight stem dart point with pronounced barbs found during testing in Unit 10. The pronounced barbs were reminiscent of those found on Marshall points, but Marshall points have expanding stems. Calf Creek points have straight stems and pronounced barbs, but their barbs are much longer than those present on the point in question. The temporal range suggested for the Calf Creek points, ca. 3000-5000 B.C. (Perino 1968:14), falls within the Early Archaic period, whereas Marshall points date to 1000 B.C. or earlier, within the Middle Archaic period (Turner and Hester 1985:119). On the basis of its similarities to these Archaic types, a time frame of 5000-1000 B.C. might be a good, albeit rough, temporal approximation. Although this temporal range is rather broad, it suggests that limited Early to Middle Archaic period occupation occurred at the site.

Unit 10 contained no ceramics and was located ca. 100 m (328.1 ft) northeast of the mitigation phase study area. It is possible that Early to Middle Archaic period occupation was concentrated in the northeastern part of the site. Unfortunately, artifact densities were so low in nearby test units that the chances for the recovery of significant data were too low to warrant further expenditure of effort on this part of the site. Other evidence for Archaic period occupation included two Elam dart points, which are believed to date to the Late Archaic period (Turner and Hester 1985:92). One of these was found adjacent to Feature 29, and one was found in Unit 103 in the Midden Block, so some mixture of early and late occupations may potentially have occurred on this portion of the site.

Gary points, untyped contracting stem points, and the untyped straight stem dart point may have been associated with the Late Archaic period, but could also have been used during the later Early Ceramic or Early Caddoan periods. Gary dart points have a date range so broad as to be almost meaningless for assessing site chronology: 2500 B.C. to A.D. 800 according to Turner and Hester (1985:101), extending up to at least A.D. 1000 at some sites in north-central Texas (McGregor and Bruseh 1987b:183). However, the chronological placement of dart points at the Doctors Creek site was refined by examining the co-occurrence of dart points and ceramics. Within the Burial Block, Gary points, as well as the untyped dart points, were found within levels that also yielded ceramic sherds. Therefore, the approximate date range for these dart points could be narrowed from the roughly 3500 year range published for the Gary type as a

whole, to the latter end of that range marked by the start of the Early Ceramic period.

Projectile point evidence for Archaic period occupation at the Doctors Creek site was extremely sparse in comparison with the evidence for Late Prehistoric period occupation. The total number of dart points recovered was only 23 (43 including all fragments), whereas the number of arrow points was 138 (203 including all fragments). Thus, the ratio of arrows to darts was roughly 4.7 to 1, indicating that the most intensive occupation occurred during the Late Prehistoric period. In addition, since many of the dart points were found in association with arrow points and/or ceramics in the deep deposit, these dart to arrow ratios do not truly reflect the relative degree of Archaic period versus Late Prehistoric period occupation. Only three dart points could be confidently assigned to the Archaic period. Therefore, based on the projectile point data, the principal occupations of the site occurred during the Late Prehistoric period (e.g., Early Ceramic and Early Caddoan periods).

Agee points have been dated to between A.D. 1000-1300 at sites in Arkansas and Louisiana (Turner and Hester 1985:162). Alba points range between A.D. 800-1200 (Turner and Hester 1985:163). Catahoula points have been placed between A.D. 700-1100, the same range listed for Friley points (Turner and Hester 1985:175). Scallorn points have been estimated to date from A.D. 700-1200 (Turner and Hester 1985:189). At Richland Creek, evidence suggested that Alba points were used later than Scallorn and Steiner points. For example, McGregor and Bruseth (1987b:183) considered Alba points to be diagnostic of the Round Prairie phase (ca. A.D. 1000-1200), whereas Scallorn and Steiner points were linked to the Richland Creek phase (ca. A.D. 800-1000). No similar trend could be distinguished at the Doctors Creek site, since most Steiner and Scallorn points were also found in Levels 1 and 2 along with the Alba-like and Friley-like points.

All other arrow points found at the Doctors Creek site were miscellaneous points that could not be assigned to any existing type. They included a variety of blade styles, and four basic shapes of basal hafting areas. Since no specific temporal estimates are published for these untyped specimens, it was not possible to assign most of them to a specific period. Only those untyped specimens found in the context of dated features could be placed in a chronological sequence. In Feature 2 an untyped, straight stem arrow point and an untyped, contracting stem arrow point were found. In Feature 4, an untyped, expanding stem arrow point was found. In Feature 5 an untyped, expanding stem arrow point was found. Similar untyped points found at other sites near Cooper Lake

probably date to the Early Ceramic period. Please see Figures 7-9 and 7-10 for illustrations of selected projectile points.

Chronology Of Ceramic Types

Features 2, 4, and 5, were the only well-dated contexts in which identifiable ceramics were recovered. Feature 2, dated at A.D. 1190 ± 30 (SMU 2009, corrected), contained four plain grog tempered specimens and one burnished bone tempered specimen. Feature 4, dated at A.D. 990 ± 20 (SMU 1947, corrected), contained a single burnished grog tempered specimen. Feature 5, dated at A.D. 1070 ± 60 (SMU 1948, corrected), contained one plain bone tempered sherd, three plain grog tempered sherds, a plain small grog tempered sherd, and a burnished small grog tempered sherd. Feature 14 yielded a date of A.D. 1190 ± 30 (SMU 2026) with no notable ceramics. Unfortunately, no decorated specimens aside from burnished sherds were found in any of these dated contexts.

It is difficult to assign temporal positions to the various decorative techniques, since many forms of decoration persisted in different combinations over long periods of time. Generally speaking, however, engraved wares appear to have been most common during the Late Caddoan period (Thurmond 1985; Pertulla 1988). In the absence of whole vessels, where vessel form can be used to assess ceramic chronology, temper types appear to have a slightly greater degree of value as temporal indicators. The majority of identifiable sherds (275) were made from thick, coarse, grog tempered paste, and included square base sherds and base sherds with slightly outflaring bases. These traits are characteristic of Williams Plain pottery manufactured during the Early Ceramic period and extending into the Early Caddoan.

A trend toward the development of finer temper over time was noted at the Thomas site (see Chapter 6), so the large number of identifiable small grog tempered sherds at the Doctors Creek site may date later than the coarser tempered Williams Plain sherds. However, this pattern cannot be demonstrated because both the fine and the coarse temper types occurred together in most of the units and at all depths, even within the deep deposit where some degree of vertical separation of artifacts had been noted. The two types also occurred together within the dated contexts of features.

This lack of vertical and horizontal separation of the two temper types prevents an accurate picture of the extent of the Early Ceramic component from being drawn because there is no way to distinguish the Early Ceramic period Williams Plain sherds from the Early Caddoan period Williams Plain sherds. Likewise, there is no way to

determine which occupations left behind fine, rather than coarse, grog temper sherds, or even if there is a temporal difference between the two temper types. As a result, it is difficult to assess how much of the midden deposit is due to the Early Ceramic occupation and how much is due to the Early Caddoan.

Bone tempered wares with fine bone temper like that found in the Doctors Creek sample, may have been more common during the Early Caddoan period (A.D. 900-1400) than during the previous Early Ceramic period, whereas shell tempered wares and fine grit tempered wares appeared relatively late in the archaeological record (Timothy K. Pertulla, personal communication 1987). At the Doctors Creek site, bone tempered sherds were recovered from two dated contexts, Feature 2 and Feature 5. Thus, it seems that this ware was in use sometime between about A.D. 1000-1200. Only two shell tempered sherds and four fine grit tempered sherds were found. In addition, only five sherds with engraving were recovered from the sample of 784 specimens.

No radiocarbon dates were obtained for these wares, but they are assumed to date to the latter portion of the Early Caddoan period or to the Late Caddoan period. This paucity of late sherds suggests that there was a very sparse occupation during the Late Caddoan period. The absence of late projectile point styles such as Maud, Talco, and Fresno lends support to this hypothesis.

Burial Chronology

The vertical position of the burials was irrelevant to interpretations of chronology. Despite the fact that Burial 1 was found at a depth of 80 cm (31.5 in) below surface, the profile of Unit 21 clearly showed that the grave originated somewhere in the upper levels. Burial positions provided a better indication of possible chronological differences, although inferences based on position are rather tenuous.

The flexed position of Burial 1 is characteristic of early burials whereas the extended position of Burial 2 is more common during the Late Caddo period. However, flexed and extended burials have been found together in some early contexts, such as in Fourche Maline occupations (Schambach 1982:133), so radiocarbon dates of the bones themselves would provide the best data by which to assess chronology. However, since less than 250 years separates the dates obtained from wood charcoal in features, it is doubtful that bone dates can provide more refined or absolute separation.

INTRASITE PATTERNING

Vertical Distribution

The vertical distribution of cultural materials was examined to search for discernible cultural stratigraphy and an interpretable chronological sequence. During the initial stage of excavation, the site was sampled rapidly by digging regularly spaced 50 x 50 cm (19.7 x 19.7 in) units in two levels. The first level (Zone 1) was comprised of the midden (30-40 cm [11.8-15.7 in] thick), and the second (Zone 2) was comprised of the underlying brown matrix (20-25 cm [7.9-9.8 in] thick). These data provided a rough look at the vertical distribution of artifacts and demonstrated that the majority of artifacts were present in Zone 1, followed by a significant drop off in artifact frequency in Zone 2. Exceptions occurred in Units 24 and 39, where more tools, lithic debris, and fire-cracked rock were recovered from Zone 2. Although the factors responsible for these two exceptions are not clear, it is possible that most artifacts and subsistence remains had been deposited in the midden layer, and that the small sample of artifacts in the underlying brown layer probably had filtered down as a result of bioturbation.

In the excavation blocks, more detailed examination of vertical provenience was possible since all 1 x 1 m (3.28 x 3.28 ft) units were excavated in arbitrary 10 cm (3.9 in) levels. The vertical distribution of artifacts within the Midden Block was such that the highest frequencies of artifacts occurred in Level 2 in most units, with the next highest frequencies in Level 1. Level 3 (and Level 4 in units where the midden was deeper) usually contained the lowest frequencies, although they were still relatively high. This pattern was especially apparent for high density classes such as lithic debris, baked clay, bone, and mussel shell. Those units in which the highest artifact frequencies occurred in the lowest levels were those which encompassed pit features containing refuse. For example, Units 77 and 82 were dug entirely within Feature 5, a large pit containing subsistence remains, so these units yielded high frequencies of bone, mussel shell, and baked clay in Levels 5 and 6.

The most likely explanation for the highest densities occurring in Level 2 is that soil was deposited on the site surface some time after site occupation had ceased. Normally, on a nonaggrading site, artifact density is greatest in the upper two or three levels, followed by a gradual drop off in artifact density as depth increases (see McIntyre 1982). This pattern occurs because all artifacts

were deposited on roughly the same surface throughout the entire period of site occupation, causing a build up of refuse along the surface layer. The artifacts found below the surface had moved downward through the soil as a result of natural bioturbation processes, such as disturbance by the burrowing of pocket gophers, or as a result of cultural processes, such as trampling (Janak and Martin 1987:13). Originally, no significant aggradation was thought to have occurred on the surface of the midden at the Doctors Creek site because it was too high to be flooded. Likewise, colluvial deposition was thought to be relatively minor, due to the gradual nature of the slope. However, the relatively low artifact density observed in the upper 10 cm (3.9 in) of the midden deposit indicated that aggradation had occurred, and the most likely source of the sandy loam was the eroded areas upslope from the midden. In all probability, nineteenth and early twentieth century farming practices (i.e., plowing the hill slope without terracing to decrease runoff) caused the erosion of the topsoil observed along the slope of the landform and this soil was subsequently deposited as a thin layer across the midden which served to lower artifact densities in Level 1.

The deep deposit adjacent to the floodplain appeared to have been created by ancient alluvial/colluvial deposition; such a setting had a better chance for the stratigraphic separation of artifacts than the remainder of the site. Therefore, Units 42-45 (50 x 100 cm [19.7 x 39.4 in] units) were dug in arbitrary 10 cm (3.9 in) levels to maintain the level of vertical control necessary to monitor changes in artifact frequencies with changes in depth. As mentioned previously, the profile of Unit 21 had revealed a sloping contact between a dark upper soil layer and an underlying brown layer. A marked increase in several artifact classes was observed between Levels 5 and 7, immediately beneath the contact, and Feature 1 was also present at that depth. It looked as if the material had been deposited on an old surface, now roughly 50-60 cm below the present ground surface. By excavating Units 42-45 in 10 cm (3.9 in) levels, it was possible to examine vertical concentrations of artifacts to see if the same phenomenon occurred elsewhere along the deep portion of the site.

Table 7-2 shows that Units 42, 43, and 45 contained too little cultural material to shed light on the problem. Only Unit 44 contained enough cultural material to detect any trends. A marked change was noted at the interface of Levels 4 and 5, but artifact density decreased markedly below that depth, instead of increasing as it had in Unit 21. Units 65-68, 1 x 1 m (3.28 x 32.8 ft) units dug to expose Burial 1, provided an additional sample of the deep deposit. An increase in lithic debris, baked clay, and bone frequencies occurred in Levels 4-6, with the exact densities evident in Level 5 along the contact of the darker

and lighter soil. Although this observation supported the hypothesis that an old surface had once been exposed at this depth, the increases were moderate; artifacts occurred consistently down to Levels 8 or 9, where they began to drop off sharply. Also, the vertical distribution of other artifact classes followed no particular pattern. Therefore, even though some evidence suggesting the presence of an old surface was detected, this evidence was not incontrovertible.

The vertical distribution of diagnostic artifacts (i.e., specific types of arrow points, dart points, and ceramics) was examined to search for evidence of chronological separation of cultural strata. No discernible temporal sequence was observed in the Midden Block, where artifact types diagnostic of specific time periods were found to be intermixed throughout the entire midden deposit. For example, dart points were present at all depths within the midden, from surface down to Level 5. Likewise, Steiner arrow points occurred in all levels within the midden. Alba-like and Friley-like arrow points were most common in Levels 1 and 2, but some were also present at greater depths. The only hint of a temporal trend was that more untyped expanding stem arrow points were found in and below Level 3 than any of the other types. However, there were still more untyped expanding stem points present in Levels 1 and 2 than in lower levels, so no clear cut vertical separation was observed.

Once ceramic analysis had been completed, the vertical distribution of specific types was examined within the Midden Block in a further attempt to isolate evidence of vertical separation of components. Since only relatively undisturbed levels were suitable for this study, those units containing features were omitted from this analysis to eliminate the possibility of vertical mixture of types resulting from pit excavation and filling. Ceramic data from twelve units that did not contain features (Units 69, 70, 74, 89, 90, 93, 94, 99, 100, 101, 105, and 106) were selected for analysis, providing a sample of 114 identifiable sherds. Table 7-11 lists the number of sherds of each type by level. The percentage of the total ceramic assemblage for that level is presented in the column next to the number.

It is clear from examination of the vertical distribution of plain and burnished sherds of all wares that no definite pattern is evident in the data. Small grog tempered burnished sherds comprised nearly the same proportion of the assemblage in Levels 1 and 3, and both grog tempered and bone tempered burnished sherds were most common in Level 1. Decorated sherds seemed to be relatively evenly distributed among all three levels. This trend is unlike that observed at the Thomas site, where burnished sherds were less common in Level 1 than in Levels 2 and 3, and the number of decorated sherds

TABLE 7-11

Vertical Distribution Of Ceramic Types In Unmixed Units From The Midden Block¹

Ceramic Type	Level 1		Level 2		Level 3	
	#	%	#	%	#	%
<i>Grit Tempered</i>						
Burnished	—	—	2	5.7	—	—
<i>Small Grog Tempered</i>						
Plain	6	11.5	7	20.0	3	11
Burnished	11	22	4	11	7	27
Horizontal Incised	—	—	—	—	1	3.7
Diagonal Incised	—	—	1	2.9	1	3.7
Incised Zoned	—	—	—	—	—	—
Punctated	3	5.7	—	—	—	—
Engraved	1	1.9	—	—	—	—
Fingernail Impressed	—	—	—	—	1	3.7
<i>Grog Tempered</i>						
Plain	19	37	15	43	10	38
Burnished	6	11.5	3	8.6	1	3.7
Incised	1	1.9	—	—	—	—
Incised Zoned	—	—	—	—	—	—
Punctated	—	—	1	2.9	1	3.7
<i>Bone Tempered</i>						
Plain	2	3.8	—	—	2	7.0
Burnished	2	3.8	1	2.9	—	—
<i>Shell Tempered</i>						
Plain	—	—	1	2.9	—	—
Total	51	—	35	—	27	—

¹ Only units without features were used for this analysis.

increased in Level 1. The lack of patterning in the vertical distribution of ceramics at the Doctors Creek site lends support to the hypothesis that there was no vertical separation of components in the Midden Block.

The only evidence suggesting the existence of any degree of vertical separation of components was noted in the deep deposit within the Burial Block. For instance, projectile point data from Units 65 through 67, as well as from Unit 21, showed that almost all projectile points recovered in Levels 6-8 were dart points (e.g., Gary points and untyped contracting stem points). Only a single untyped expanding stem arrow point was found in the lower levels, and it was found within Feature 32, the intrusive grave pit for Burial 1. In these units, all projectile points found between Levels 1 and 5 were arrow points. Alba-like points were confined to the upper two levels, Scallorn points were spread among Levels 2-5,

and Friley-like points were found in Levels 1 and 4. Similarly, in the deep deposit west of the Burial Block, Unit 44 yielded a Gary point in Level 5, whereas an untyped expanding stem arrow point was found in Level 2. Since there is temporal overlap among all of these types, the observed distribution does not necessarily demonstrate that components were separated, but it strongly suggests that this was the case within the limited portion of the site made up of the deep deposit.

The vertical distribution of ceramics within the Burial Block provided additional information useful for refining the chronological sequence. Most ceramic sherds were present in the upper 70 cm (27.6 in) of the deep deposit, although one sherd was found at a depth of 90 cm (35.4 in) below surface. These sherds were limited to grog tempered and small grog tempered wares, and most sherds were plain. Three incised sherds and one burnished sherd were the only decorated types present. The vertical distribution of ceramics (and other artifact classes) was due in part to disturbance caused by the excavation of the grave for Burial 1, and accentuated by bioturbation.

Refitting of ceramic sherds provided empirical evidence supporting this assertion; two basal sherds, which fit together were found in Unit 66, one in Level 3 and the other in Level 6. Since Unit 66 encountered the southern portion of Burial 1, it seems likely that this distribution reflects disturbance from the grave excavation and filling episode. The presence of a single small sherd in Level 9 does not necessarily preclude a vertical separation of components, but demonstrates that some limited degree of mixing has occurred.

The relative lack of sherds in the lowest three levels of the Burial Block suggests that the earliest materials in the deep deposit might have predated the Early Ceramic period. The presence of Late Archaic dart points elsewhere on the site demonstrates that Late Archaic period occupation occurred there, but due to the low artifact density and lack of diagnostic artifacts in the lowest levels, no conclusions can be made regarding the presence of a distinct Late Archaic horizon.

Horizontal Distribution

The horizontal distribution of artifacts across the site was examined in an attempt to define temporally and/or functionally discrete site areas. The goal of this intrasite spatial analysis was to isolate the different kinds of activities that occurred in different parts of the site. Three different systematically collected data sets were examined for this analysis: magnetic data, artifact data, and feature data. First, computer maps of magnetic anomalies and artifact concentrations were generated. These maps were compared with each other to look for areas of overlap that

might mark the presence of activity areas. Next, they were compared with the map of cultural features recorded after the block excavations and mechanical stripping of the A horizon had been completed to assess the relationships among magnetic anomalies, artifact clusters, and cultural features. Finally, these maps from the Doctors Creek site were compared with similar maps from other sites where habitation and work areas had been clearly identified, in an effort to interpret the spatial patterns observed.

Magnetic Data

The Doctors Creek site proved to be magnetically diverse. Several anomalies of varying size, intensity, and polarity were observed. Of these anomalies, seven that were believed to have been caused by cultural sources were assigned numbers and scheduled for investigation (Figure 7-17). Anomalies 1, 3, 4, 6, and 7 were positive anomalies ranging in intensity from 120-500 g, whereas Anomalies 2 and 5 were negative anomalies ranging in intensity from -11 to -48 g.

Units 48-52 were 1 x 1 m (3.28 x 32.8 ft) units dug to investigate Anomalies 1-5. Anomalies 6 and 7 fell within the systematically placed units (e.g., Units 42 and 27 respectively). Unfortunately, in all units with the exception of Unit 48, the source of anomalous magnetism was traced to metal objects such as barbed wire and chain associated with the historic occupation of the site. This is a common problem with magnetic surveys. Unit 48 was excavated down five levels to a depth of 50 cm (19.7 in) below surface, but no obvious feature was discovered. A fair amount of fire-cracked rock was recovered, but no concentrations were observed that would account for the reading of 120 g obtained from this spot during the survey. The source of anomalous magnetism for Anomaly 3 remains a mystery.

Additional areas of magnetic lows occurred along the south edge of the survey area; these were sampled during the excavation of systematic 50 x 50 cm (19.7 x 19.7 in) units (Units 24-26), but no prehistoric cultural features or historic metal objects were observed. The sources of anomalous magnetism in these areas are unknown. Although the magnetic data were not as useful as had been anticipated, the distribution of magnetic anomalies was compared with the map of cultural features to detect possible hearths and roasting features. This technique was extremely useful for identifying hearths and roasting features in the Richland Creek vicinity, where fire-cracked rock was demonstrated to be the principal source of magnetism in these features (Huggins et al. 1987:151). As a result, features which corresponded with magnetic highs were confidently assigned to one of these two classes.

The reason for the success of the magnetic survey in the Richland Creek area was that the source of the rock found in features was Wilcox sandstone, a rock with a high iron content that became magnetically enhanced when burned. Unfortunately, quartzite cobbles were the only sources of stone in the Cooper Lake area, and they do not become magnetically enhanced when burned. Therefore, the results of the magnetic survey were far less useful for identifying and classifying features at Cooper Lake. Still, magnetic anomalies were compared with the maps of features and artifact distributions to make sure that possible features were not overlooked.

At the Doctors Creek site, comparison of magnetic anomalies with the map of features failed to turn up any correlations. No magnetic anomalies, positive or negative, were associated with features. Next, the magnetic anomalies were compared with the SYMAPs from the Midden Block and from the 50 x 50 cm (19.7 x 19.7 in) units showing the entire site. The only correlation observed was between a positive magnetic anomaly; shown to be co-occurring with concentrations of bone, fire-cracked rock, bifaces, and lithic debris in Unit 32 (S20 E20).

The consistent occurrence of these artifact classes in the same location suggests that a feature was probably present. However, given the absolute lack of correlation between magnetic anomalies and other features and artifact clusters at the site, the presence of a magnetic anomaly over Unit 32 may simply be a coincidence. At any rate, the magnetic survey was of little use for locating cultural features or interpreting spatial patterning at the Doctors Creek site.

SYMAP Descriptions

The use of the SYMAP program has proven useful for directing excavations toward the portions of sites with prime cultural potential (cf. Bruseth and Perttula 1981; Bruseth and Martin 1987a). The usefulness of the SYMAPs lies in their depiction of activity areas within a site, especially when they are used in conjunction with maps of feature distributions. Activities within and around structures can be assessed by examining the co-occurrence of high density artifact clusters, and comparing them with maps of feature locations. Conversely, plaza areas where little activity took place, or where sweeping removed debris, can be isolated by low density areas on the SYMAPs. Generally, SYMAPs are unable to pinpoint locations of cultural features, especially when the sampling interval is 5 m (16.4 ft) and most features are less than 2 m (6.6 ft) in diameter. For example, only one unit (Unit 33) fell within a feature (Feature 2).

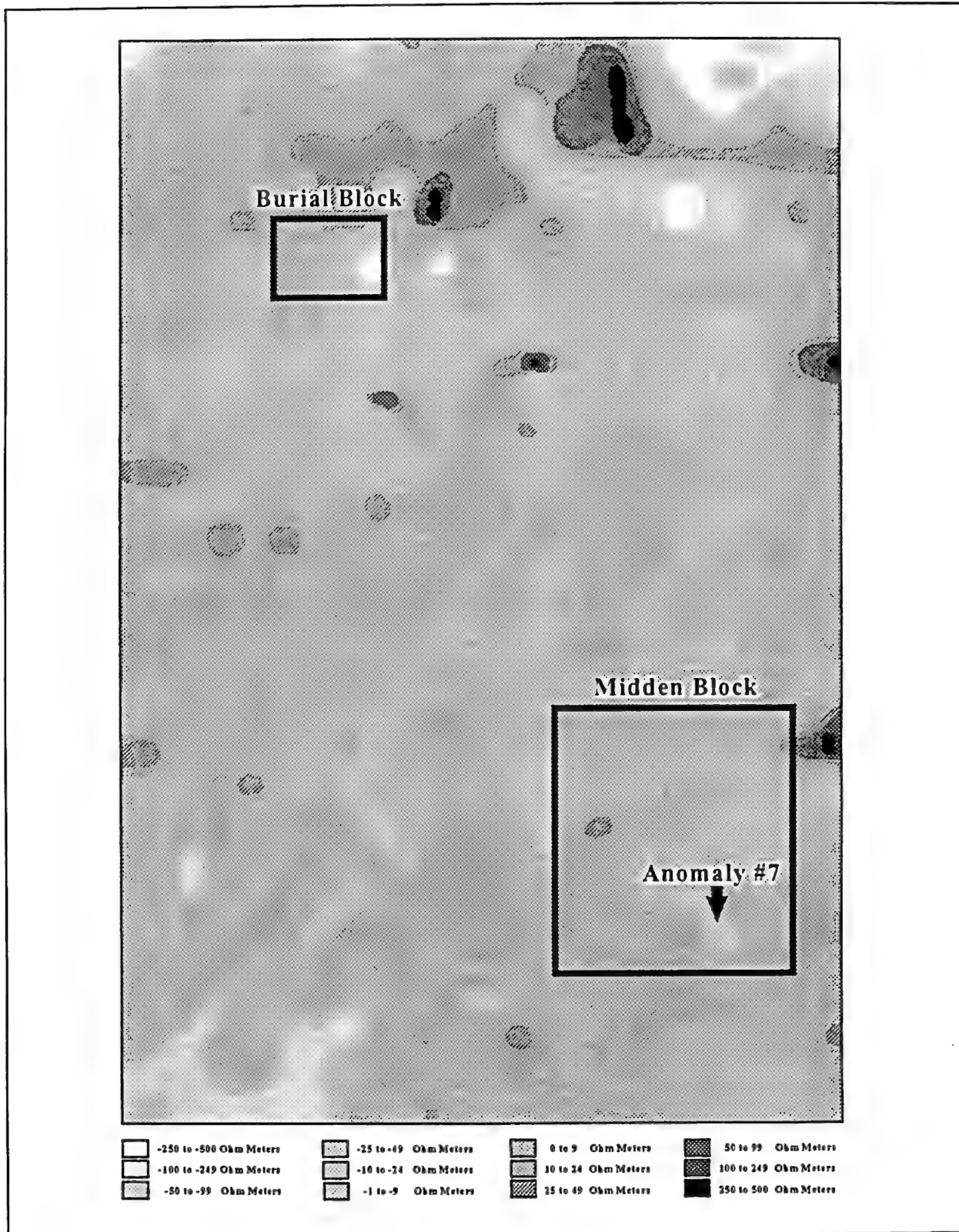


Figure 7-17. Map of magnetic anomalies showing the Midden Block (large square) and Burial Block (small square) at 41DT124: the Doctors Creek site.

Nevertheless, the broad patterns of activity surrounding the features are made visible, so the SYMAPs are still useful for directing excavations toward areas containing cultural features.

Two types of SYMAPs were generated, one encompassing most of the excavation area using data from 50 x 50 cm (19.7 x 19.7 in) units, and another covering the Midden Block using data from 1 x 1 m (3.28 x 32.8 ft) units. Data from the four 50 x 100 cm (19.7 x 39.4 in) units were not included on the site-wide SYMAPs because those units were larger, spaced at broader intervals, located within the aggrading portion of the site, and were dug in 10 cm (3.9 in) levels. Since these differences in context and excavation techniques affect the generation and interpretation of the maps, the 50 x 100 cm (19.7 x 39.4 in) units were omitted.

Before interpreting, the procedures governing the output of the SYMAPs must be explained. Selection of the number of contour intervals to use, and the percentage of the total artifact frequencies assigned to each contour can have dramatic effects on the outcome of the maps. Factors affecting the selection of contour intervals include the overall artifact density at the site, the frequency range for each individual artifact class, and whether a fine-grained view of high density or low density clusters is needed to address research questions. For example, the effectiveness of the SYMAP program for isolating activity areas may be greatly reduced if the site was sparsely occupied and artifact densities were extremely low. In this case, the "high density" clusters may be so low as to be misleading, directing excavation efforts toward areas that may reveal little about the nature of the occupation. Even on sites with relatively high artifact densities, certain artifact classes with low frequencies can create problems in interpretation. Often, bifaces, unifaces, projectile points, and ceramics are low density artifact classes, and the SYMAPs obtained for these classes lack the large scale clusters observed for high frequency classes such as lithic debris and fire-cracked rock. Finally, high density or low density artifact clusters sometimes encompass such large portions of the site map that contours must be adjusted to obtain greater detail at either the high end or low end of the scale to allow patterning to be observed.

The SYMAP program has a default mode that divides data sets evenly into five contours, each of which represents 20% of the total maximum value. For example, if the unit with the highest frequency of flakes contained 100 flakes, the five contour intervals would represent 0-20, 21-40, 41-60, 61-80, and 81-100 flakes per unit. SYMAPs for all artifact classes were run using the default mode, but other methods of adjusting contour intervals were experimented with. Contour intervals designed to enhance the high end of the scale divided the data up into

intervals of 5%, 10%, 25%, 30%, and over 30%. These particular percentages had proven useful for detecting concentrations of artifacts over structures and associated features at the Bird Point Island site in the Richland Creek drainage when it was first sampled by 50 x 50 cm (19.7 x 19.7 in) units spaced at 5 m (16.4 ft) intervals (Martin 1983:101).

Both procedures were used to run the maps for data collected from the 50 x 50 cm (19.7 x 19.7 in) units and the 1 x 1 m (3.28 x 32.8 ft) units in the Midden Block. However, an additional technique was also used to run the maps of the Midden Block. Using this technique, the artifact counts for each class were plotted as histograms and discrete clusters of frequencies resulting from these plots were used to delimit contours. As a result, the percentages comprising contour intervals varied for each artifact class. This technique was not attempted for artifact classes where the counts were uniformly distributed and no clusters could be observed, or where a single large cluster was observed. In all cases, outliers were discarded from the value range. In effect, this procedure attempted to view "natural" divisions in the assemblage (the clusters observed on the histograms) while removing extreme values that might overshadow important variability in the middle density range of the assemblage. Comparison with data from other north-central Texas sites where the SYMAP program had delineated habitation areas, roasting features, and midden deposits was useful for interpreting trends observed in the Doctors Creek SYMAPs. For instance, at the Hines site in Lake Fork Reservoir, high density clusters of lithic debris, ceramics, and daub were found together over a series of three Caddoan structures built sequentially at the same spot on the knoll (Bruseth and Perttula 1981:65).

At Bird Point Island in the Richland Creek Reservoir, the lithic debris SYMAP exhibited high density clusters that covered large portions of structures and adjacent roasting pits. House 1, which appeared to have been occupied the longest, also contained high density clusters of charcoal and baked clay. The co-occurrence of high density clusters of these artifact classes, along with the co-occurrence of bone and mussel shell clusters, successfully defined midden deposits. On the other hand, not all structures are delineated by high density clusters (Bruseth and Martin 1987c).

The house structures at the Cobb-Pool site in Joe Pool Lake were found in low density areas which surrounded high density clusters between the structures (Peter and McGregor 1988b:132-138). The distributions observed on the Doctors Creek SYMAPs were interpreted in light of these varied patterns, and various algorithms were examined to determine which parameters offer best spatial resolution.

SYMAP Results

The Entire Excavation Area

Since a major excavation goal was to examine the midden, high densities of bone and shell were used as indicators of midden, and excavation units were placed accordingly. Examination of the SYMAPs for both bone and mussel shell (Figures 7-18 and 7-19) demonstrates that the Midden Block encompassed the southern half of the high density cluster for shell, and one of two bone clusters found on the site. Once mechanized scraping had been completed around the Midden Block, it became apparent that the Midden Block contained most cultural features recorded at the site. Thus, the placement of the Midden Block successfully met the goals of the midden excavation, despite the lack of computer generated maps during the course of fieldwork.

The SYMAPs proved to be important for assisting with interpretation of activities conducted on the site because they provided information not readily observable from the notes and forms. Evidence of concentrated activity outside of the Midden Block was detected with the aid of these maps. For instance, the consistent occurrence of high density or medium density clusters of bone, fire-cracked rock, bifaces, and lithic debris in Unit 32 (S20 E20) led to the interpretation of this location as a possible feature. The following discussion notes the important trends observed on these maps.

The lithic debris map (Figure 7-20) was dominated by a large high density cluster (50-62 flakes per unit) in Units 34 and 39, suggesting that most stone tool manufacturing was concentrated immediately northwest of the Midden Block, partially encompassing the edge of the block. Unifaces were concentrated north and northwest of this lithic debris concentration (Figure 7-21), but interpretation of this distribution was difficult because most of the unifaces were marginally modified pieces, the function of which could not be determined.

On a general level, most of the bifaces (Figure 7-22) and ceramics (Figure 7-23) found on the site were concentrated over the Midden Block and the area to the south and southwest of the block. This same general pattern was observed for bone (Figure 7-18), and baked clay (Figure 7-24). This trend indicates that the majority of activities, excluding lithic reduction, were concentrated in the southwestern quarter of the study area. Virtually no high density clusters occurred east of the E20 line, and only lithic debris and some small clusters of fire-cracked rock occurred north of the S20 line.

On a more specific level, the SYMAP of fire-cracked rock (Figure 7-25) contained three high density clusters

(100-126 fragments per unit), with the largest cluster along the southern edge of the excavation area (Units 24 and 25), one cluster northwest of the Midden Block (Unit 39), and a very small one 8 m (26.2 ft) west of the Midden Block (Unit 30). In addition, high density clusters of several other artifact classes were observed within the large fire-cracked rock cluster to the south. A bone cluster (130-162 g per unit) fell within this area, as did clusters of ceramics (8-10 sherds per unit), baked clay (68-85 g per unit), and bifaces (2-3 per unit).

Projectile point clusters (Figure 7-26) appeared to be concentrated outside of this area of high activity and outside of the Midden Block, but the importance of this pattern is difficult to assess given the low frequencies for this artifact class. Also due, to the edge effect of the SYMAP algorithm, this pattern is somewhat inflated and spurious.

The co-occurrence of clusters along the south edge of the study area was not recognized in time to obtain a larger controlled sample, since mechanized scraping had been completed by the time the SYMAPs were generated. Nevertheless, limited interpretations about the use of this portion of the site can be made. For one thing, the site-wide distribution of fire-cracked rock and baked clay suggests that cooking and/or roasting activity may have been even more intensive outside of the Midden Block than it was within the block. Since no roasting pits or features of any kind were found in this area after completion of mechanized scraping, activity must have been confined to the A horizon. A similar situation was observed at the Adams Ranch site in the Richland Creek Reservoir, where overlapping clusters of several artifact categories were observed in areas with few postholes or other cultural features. In one such area, where careful excavation had been conducted to examine a magnetic anomaly, a very high concentration of fire-cracked rock and baked clay was observed in the A horizon, but virtually no trace was visible in the B horizon. This feature was interpreted as a surface roasting area, as opposed to a roasting pit (Martin 1987: 254). Elsewhere, clusters of nearly all classes were found together within or adjacent to roasting pits. Apparently, the southern edge of the Doctors Creek excavation area represented an outdoor work area limited to surface activity, perhaps involving very shallow pits contained entirely within the A horizon.

To summarize, the maps of artifact distributions were useful for demonstrating general patterns of activity. They showed that activity was most concentrated in the southwest quarter of the study area, and that an area of intensive cooking or roasting activity marked by high densities of fire-cracked rock and baked clay, as well as bone and ceramics, was located to the southwest of the

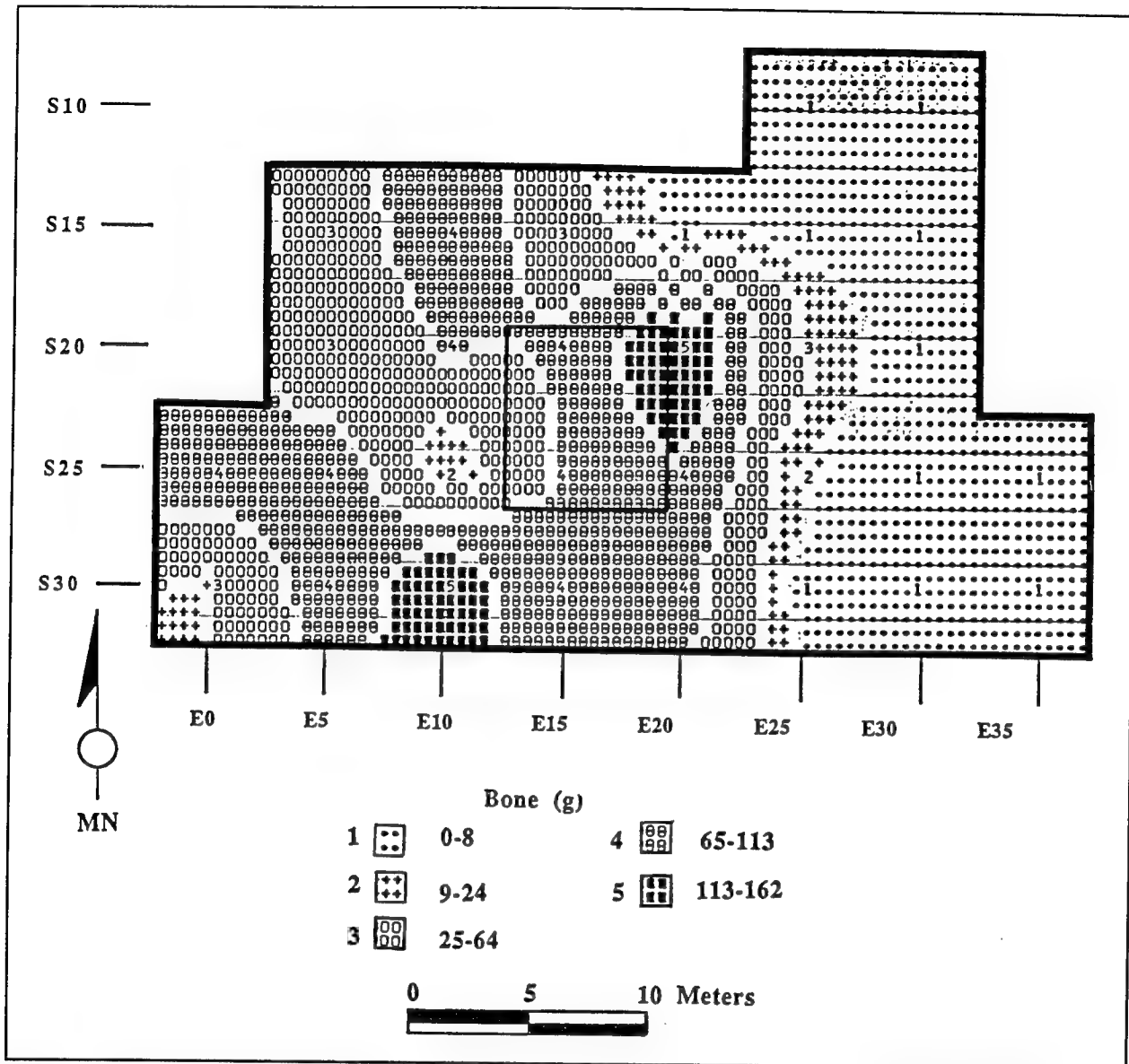


Figure 7-18. SYMAP showing the distribution of bone at 41DT124: the Doctors Creek site, based on data from 50 x 50 cm (19.7 x 19.7 in) units. The central square is the Midden Block.

Midden Block. Lithic reduction, on the other hand, was located in a separate area to the northwest of the Midden Block.

The Midden Block

Obviously, the use of SYMAPs to study the distribution of materials within the Midden Block was somewhat different from the manner in which they were used to analyze data from 50 x 50 cm (19.7 x 19.7 in) units. Rather than sampling a large site area and searching for evidence of specialized activity, a small portion of the

site was entirely excavated and the artifact distributions were compared with maps of features to see which high density clusters overlapped with features, which were absent from features, and what kinds of activity occurred in areas surrounding features. In this situation, the SYMAP edge effect algorithm is uncontrolled.

Since no evidence for the vertical separation of components was observed within the midden, the SYMAPs for the Midden Block were run with data from all levels combined. In most units three levels were excavated, whereas in others, four or more levels were dug. This did not pose a problem for interpretation

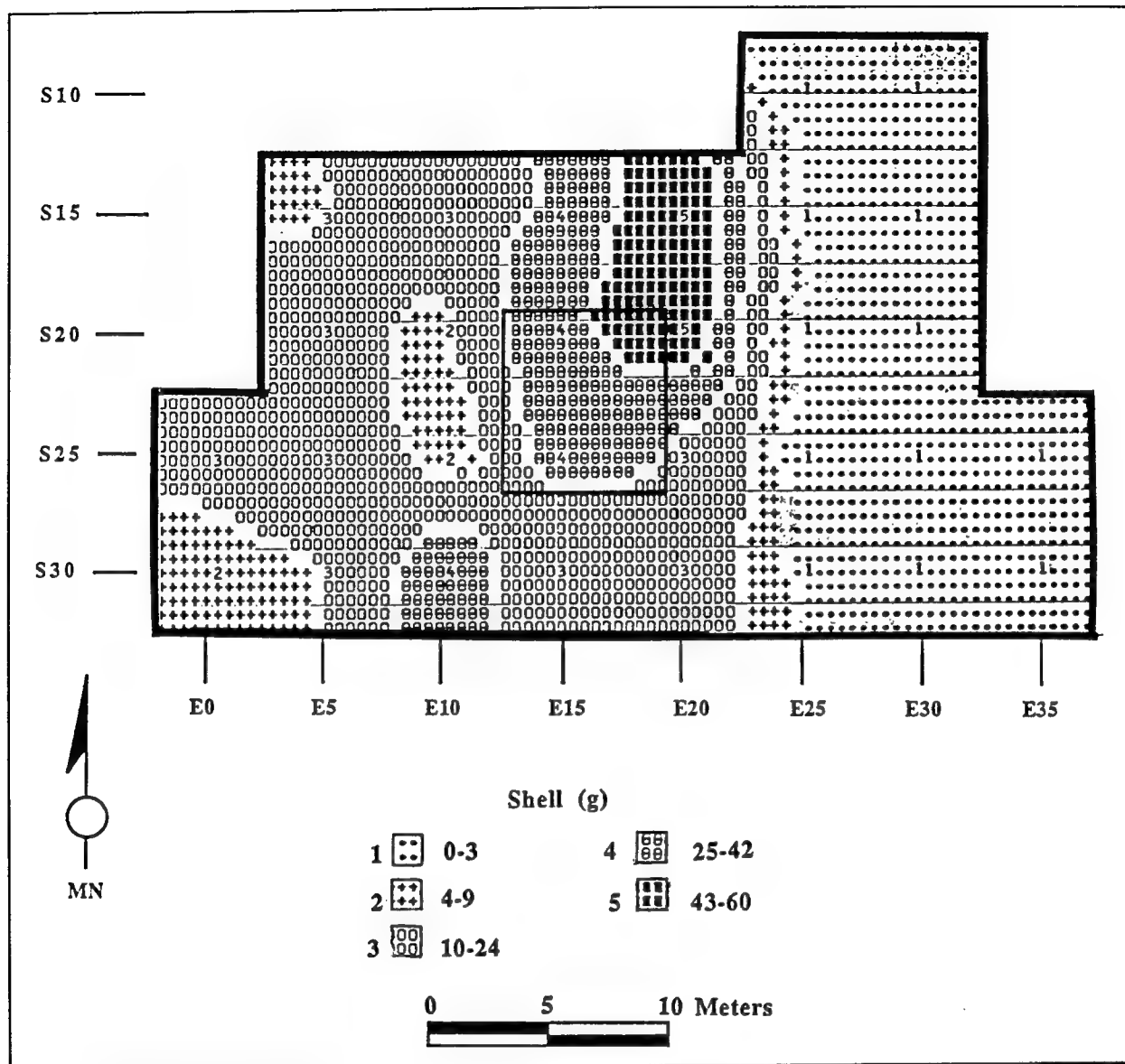


Figure 7-19. SYMAP showing the distribution of mussel shell at 41DT124: the Doctors Creek site, based on data from 50 x 50 cm (19.7 x 19.7 in) units.

because the goal of this study was to examine the artifact distribution of the entire midden deposit, regardless of the thickness of the midden. Since this portion of the site appeared to be nonaggrading, artifacts must have originated from the same surface and then moved downward through a variety of natural and cultural processes. In a nonaggrading situation, digging deeper where the midden deposit dipped deeper would not create artificially high frequencies.

Certain biases affecting interpretation were introduced by the manner in which some features were excavated, causing data to be removed from units with

shallow features, and to be added to units excavated to the bottom of features. For instance, Units 77 and 82, contained entirely within Feature 5, were taken down to the bottom of the feature (6.5 and 5 levels, respectively), creating artificially high frequencies over part of the feature. Other units in which features were found (including adjacent units that contained significant portions of Feature 5) were taken down only three or four levels, to the point where the features first became visible in the underlying brown matrix. Feature fill below that point was processed separately and was assigned a feature number rather than a level number. Thus, the fact that

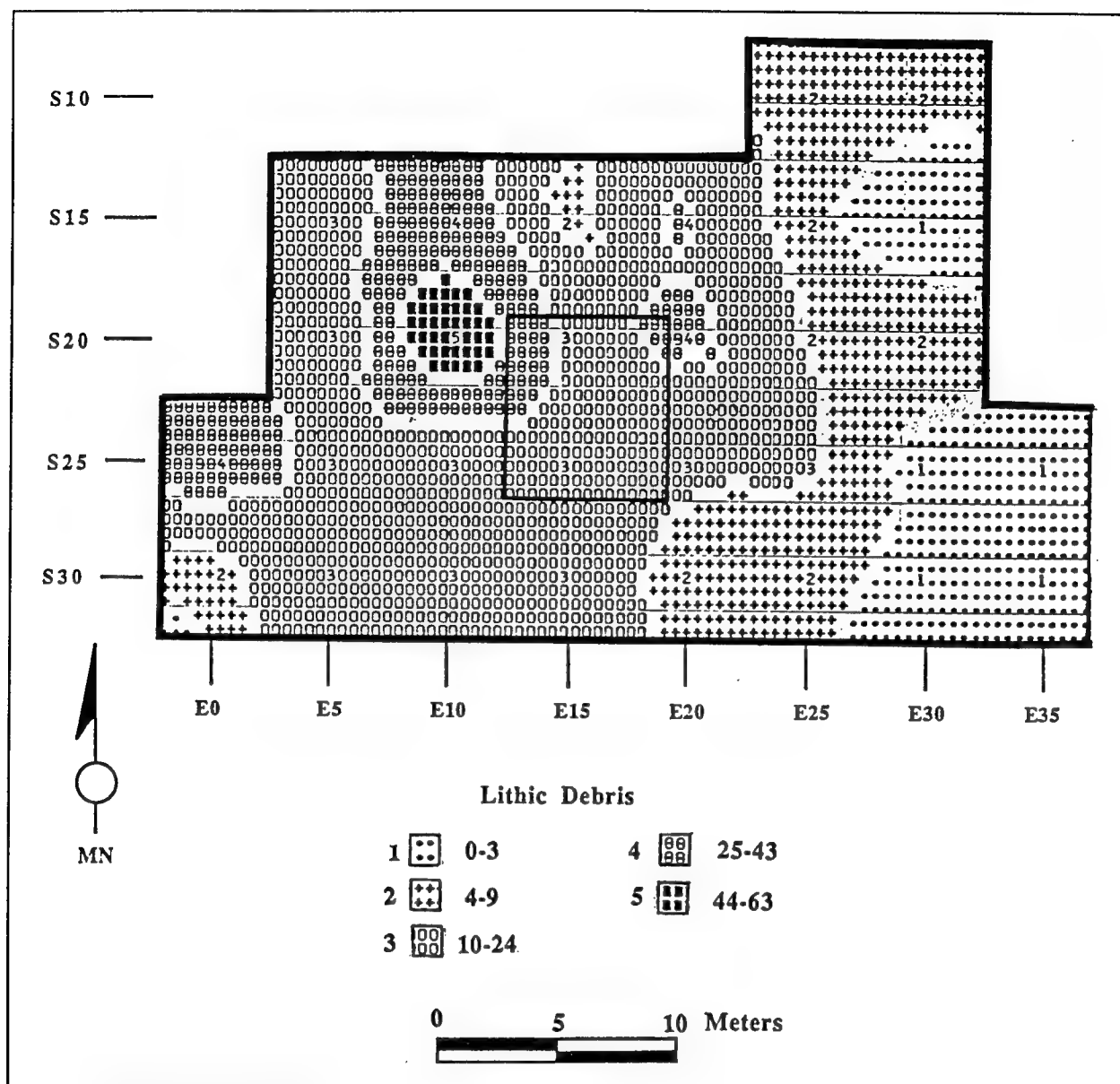


Figure 7-20. SYMAP showing the distribution of lithic debris at 41DT124: the Doctors Creek site, based on data from 50 x 50 cm (19.7 x 19.7 in) units.

Feature 5 appears to have the highest frequencies for results would have been obtained for other features if the bottom portion of their fill had been added to the data used to run the SYMAP program.

At the other end of the spectrum, hearths that were visible in upper levels as concentrations of baked clay and charcoal (Features 6, 13, and 14) were excavated and their contents kept separate from other materials in those levels. As a result, these features did not show up as high density clusters on the SYMAPs. In fact, in some cases, they appeared as low density "holes" within moderate density

clusters. Interpretation of the SYMAPs must be conducted in light of these sources of bias, with the understanding that some patterns, particularly around the edge of the SYMAP field, may be spurious.

Three sets of SYMAPs were run for each artifact class using the three different methods for assigning contour intervals that were described previously. In general, the same basic patterns were observed on maps produced using the default option and those using the enhanced high percentages (e.g., 5, 10, 25, 30, and over 30%). For some artifact classes, maps based on the

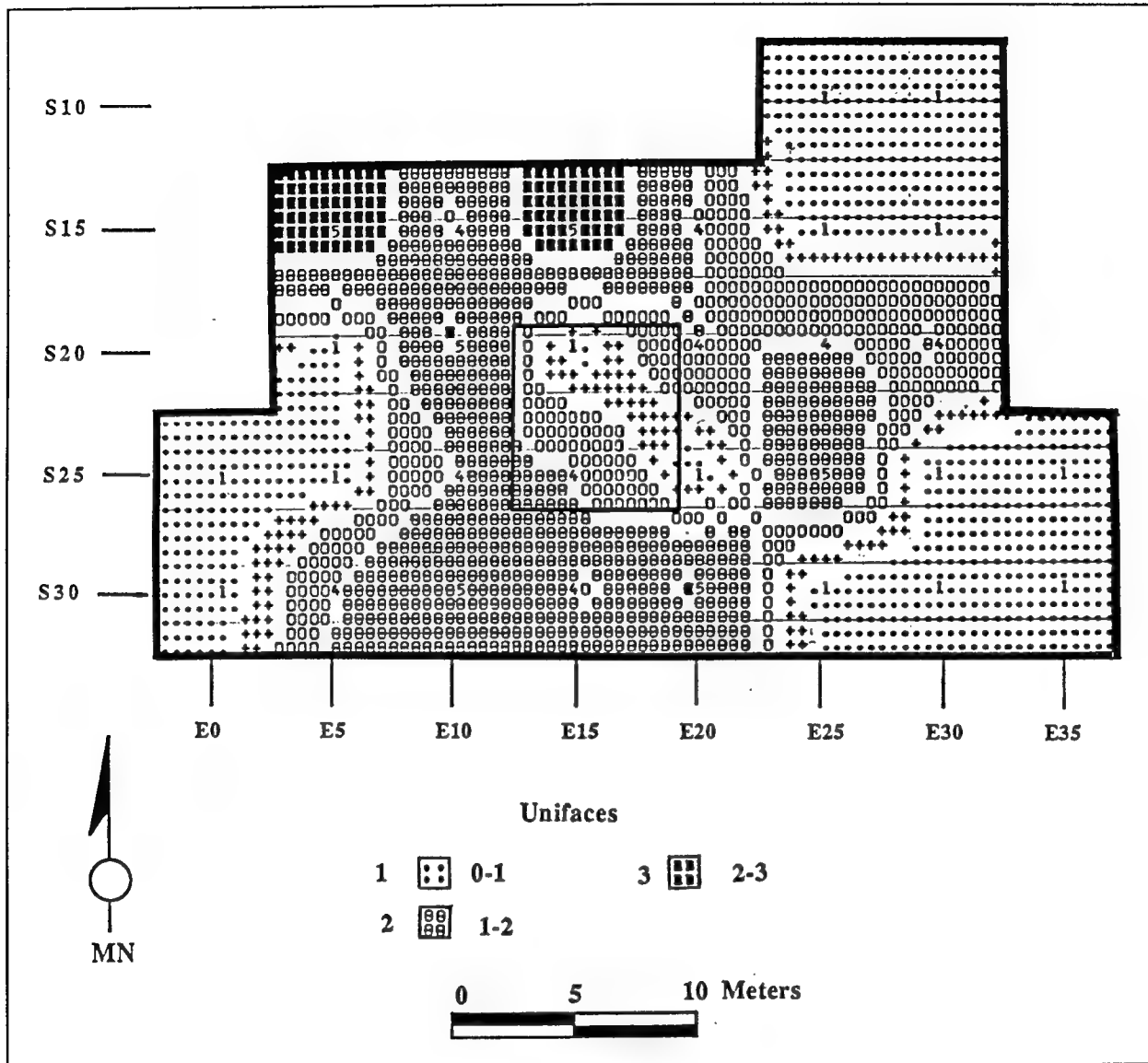


Figure 7-21. SYMAP showing the distribution of uniface artifacts at 41DT124: the Doctors Creek site, based on data from 50 x 50 cm (19.7 x 19.7 in) units.

histogram method were also similar to these maps, but for other classes they were quite different. The maps generated for baked clay and shell serve to illustrate these similarities and differences.

For baked clay, both the default option (Figure 7-27) and the version with enhanced high percentages (Figure 7-28) yielded a single high density cluster and four medium density clusters over Feature 5, one medium density cluster over Feature 3, one over Feature 4, and two clusters not associated with features. These maps were nearly identical, differing primarily in the contour levels assigned by the SYMAP program. That is, the medium density clusters labeled as level 3 contours on the default

map were shown as level 4 contours on the enhanced version. On the other hand, the map based on the histogram (Figure 7-29) grouped the data into two small high density clusters and one large high density band forming an arc over the locations where the other two maps had shown discrete medium density clusters. Thus, although this map accurately indicated which general area within the midden block had the highest density of baked clay, it was less precise than maps using the other two methods of contouring which formed discrete clusters over cultural features.

In the case of mussel shell, the default option (Figure 7-30) and enhanced high percentages version (Figure 7-

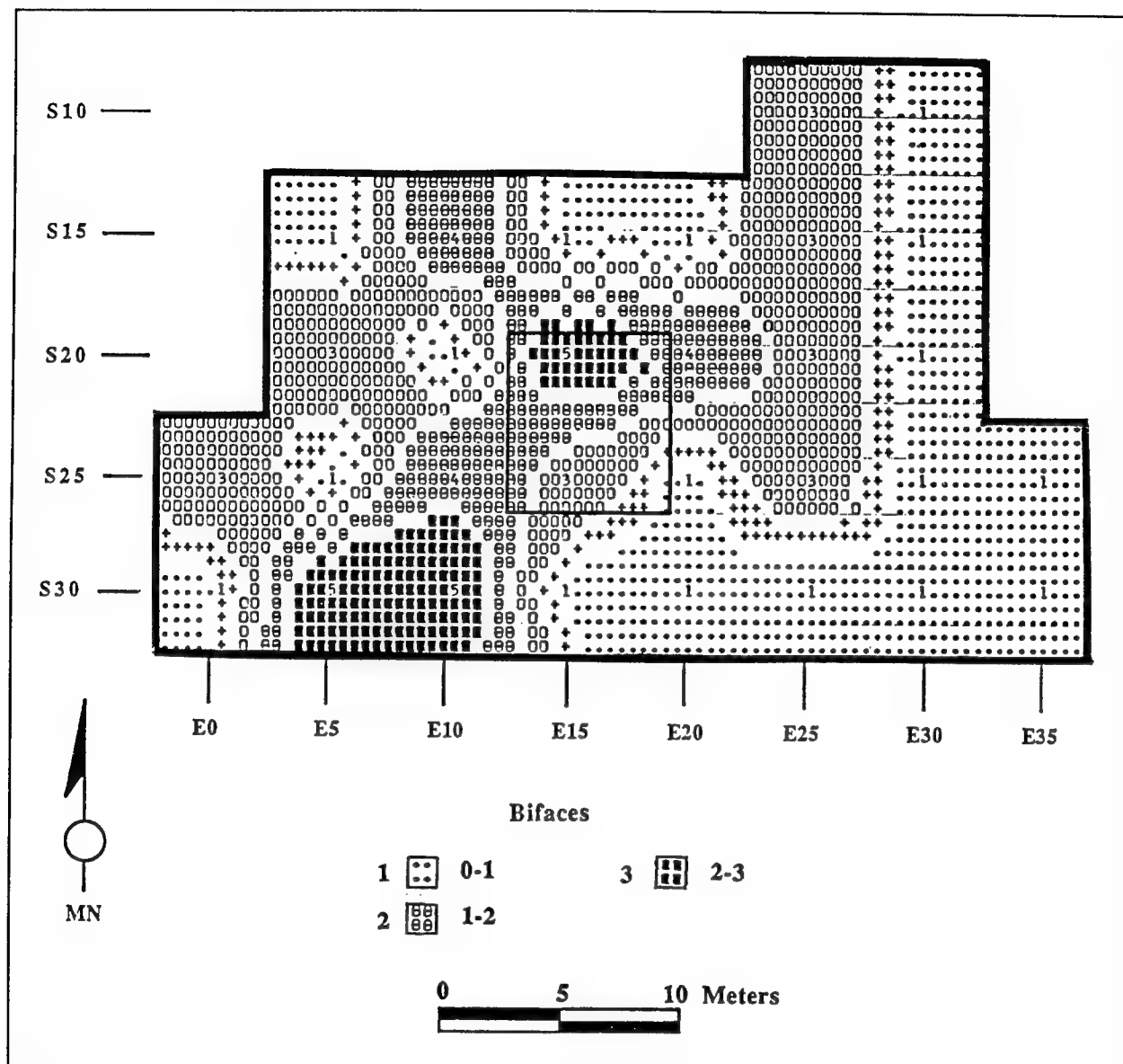


Figure 7-22. SYMAP showing the distribution of bifaces at 41DT124: the Doctors Creek site, based on data from 50 x 50 cm (19.7 x 19.7 in) units.

31) also produced nearly identical maps that showed discrete high or medium density clusters over Features 2, 3, 4, and 5. However, the map based on the histogram method produced results that were quite different (Figure 7-32). A large high density cluster encompassed Features 3 and Feature 4, but Features 2 and 5 were indistinguishable, and a sizable high density cluster was shown to the southeast in an area registered as a small medium density cluster on the other maps. Judging from this pattern, the histogram method appears to have mapped random groupings of frequencies that have no significant cultural meaning. Since the default method and

the enhanced high percentages method isolated clusters over cultural features, they appear to be the best methods for detecting clusters with cultural meaning. Interpretations of the Midden Block activities were based primarily on the results of the enhanced high percentage SYMAPs.

Within the Midden Block, most of the features measuring 1 m (3.28 ft) across or larger were visible on SYMAPs as discrete high or medium density clusters for several artifact classes. The SYMAPs for classes other than baked clay and shell are illustrated in Figures 7-33 through 7-39. Feature 5 exhibited the co-association of

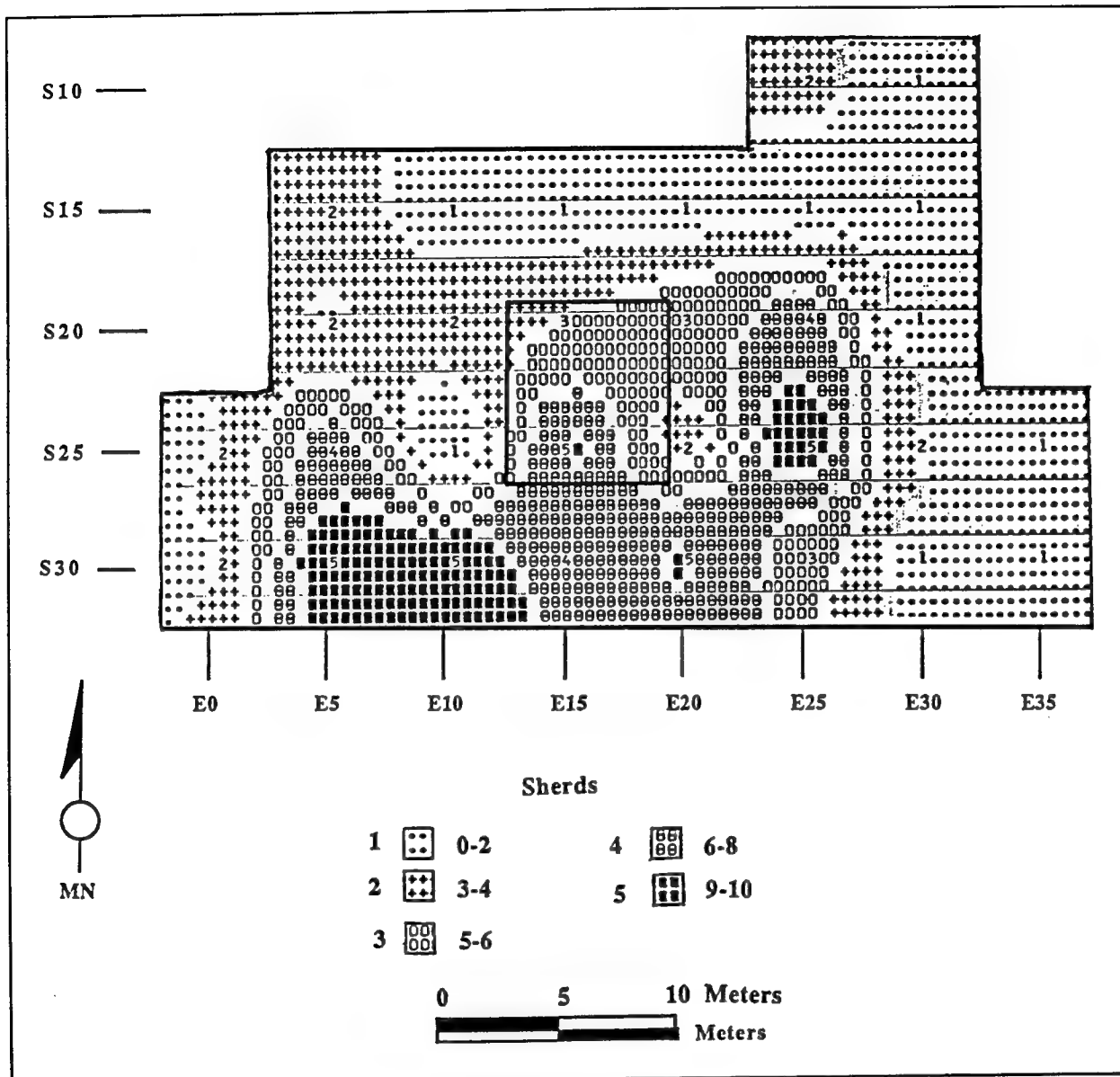


Figure 7-23. SYMAP showing the distribution of ceramic sherds at 41DT124: the Doctors Creek site, based on data from 50 x 50 cm (19.7 x 19.7 in) units.

high or medium density clusters for all artifact classes in the portion of the Feature comprised of Unit 77, due to the fact that materials from the lower levels were included. When data from Unit 77 were discounted, and only other units within Feature 5 were examined, baked clay, bone, and projectile points were the only classes exhibiting discrete clusters. Feature 2 was marked by clusters of shell and projectile points, whereas baked clay and shell occurred together over Features 3 and 4. A bone cluster occurred over Feature 9, and a cluster of sherds over Feature 6.

Activity surrounding the features was more difficult to assess, but some interesting trends were noted. For instance, several high density clusters of unifaces and bifaces were observed which were next to, but outside of features. This trend suggested that these tools might be related to sets of activities that were conducted around the features, so a more detailed examination was conducted by plotting the distribution of specific tool types, omitting fragments and marginally modified pieces. In an attempt to identify stone tool working areas the distribution of aborted bifaces was plotted along with the distribution of

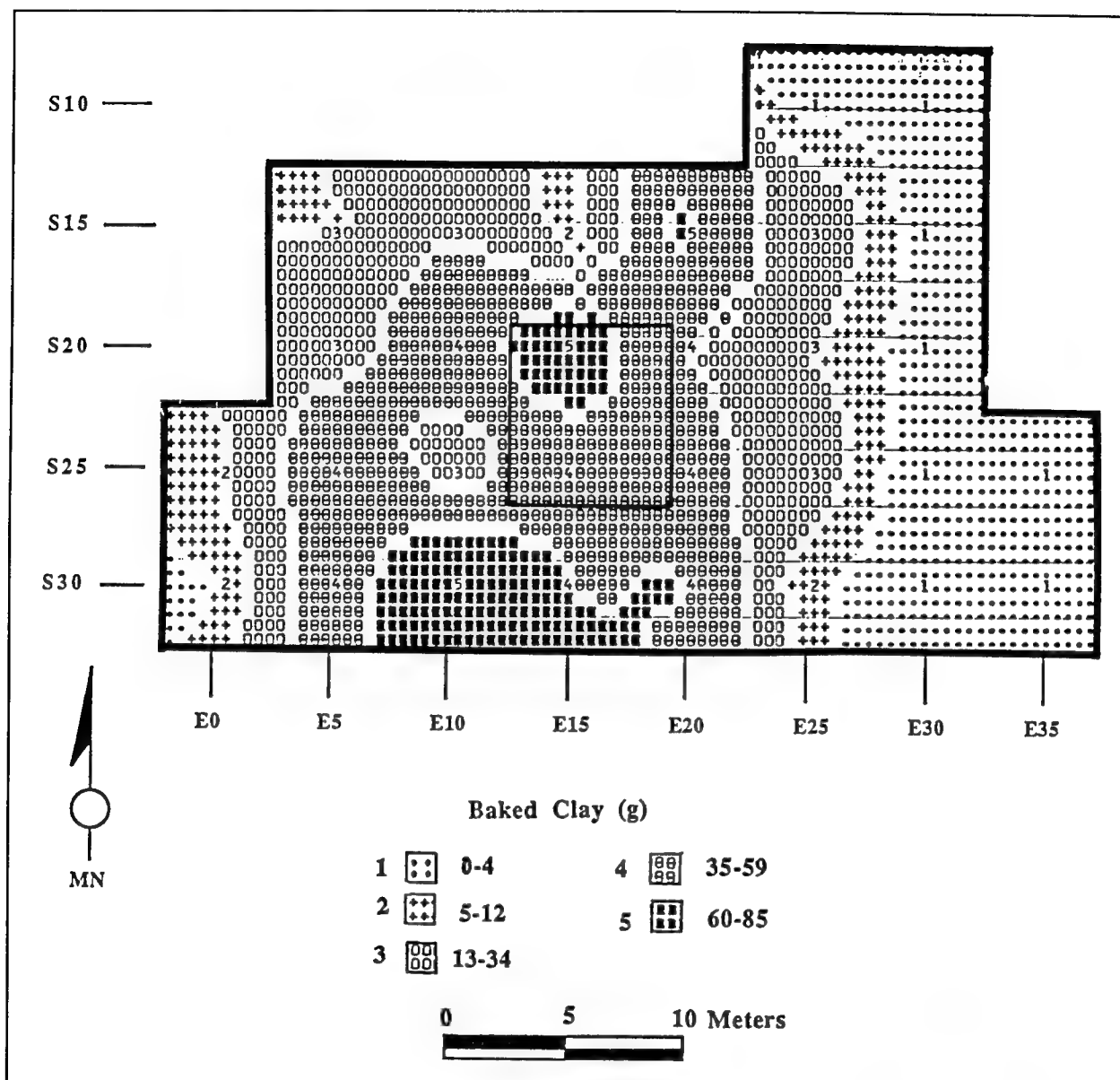


Figure 7-24. SYMAP showing the distribution of baked clay at 41DT124: the Doctors Creek site, based on data from 50 x 50 cm (19.7 x 19.7 in) units.

cores and the distribution of bone and antler tools believed to have been used for stone tool manufacture. Then, the distribution of other finished bifaces, such as knives and drills or awls, was examined to see if other activities could be observed.

Overall, the pattern for bifacial tools was relatively uninterpretable. Within the high density clusters shown on the SYMAP, the only recognizable tools included a small knife in the southwest corner, a drill/awl and possible dart tip in the cluster around Feature 4, and some possible arrow point fragments in the northwest corner. However,

the aborted bifaces presented an interpretable pattern, especially when compared with distributions of other artifact classes associated with lithic reduction.

The distribution of aborted bifaces tended to follow the diagonal stretching from the southwestern corner of the block to the northeastern corner. The distribution of cores also showed a diagonal band of concentration roughly paralleling the pattern for aborted bifaces. For both artifact classes, the densest concentrations appeared over and around Feature 9 and in the area bounded by Features 2, 3, 5, and 14. Battered antler tines and bone

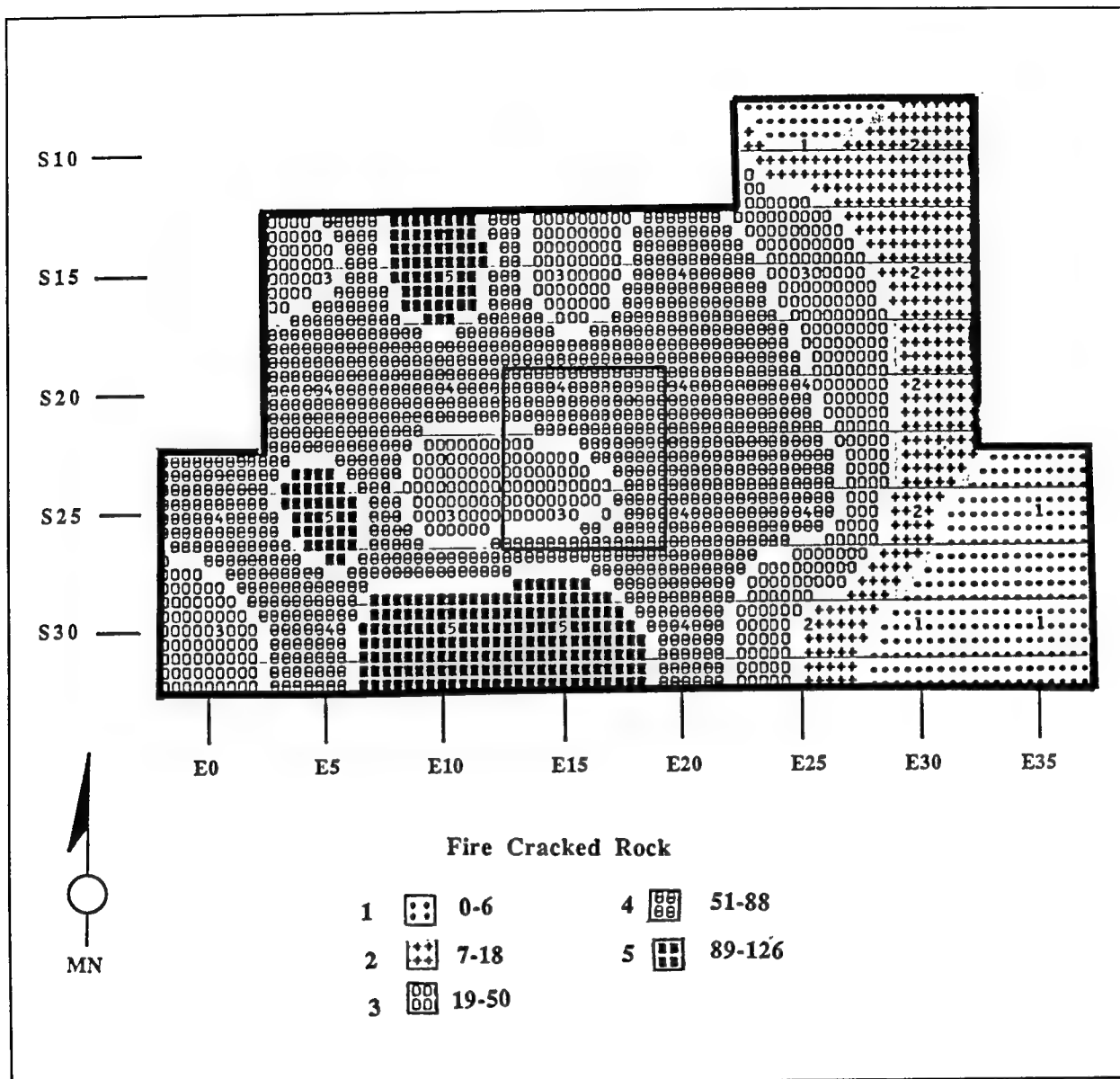


Figure 7-25. SYMAP showing the distribution of fire-cracked rock at 41DT124: the Doctors Creek site, based on data from 50 x 50 cm (19.7 x 19.7 in) units.

tools with flat cross sections, which may have been used for fine pressure flaking during the lithic reduction process, were concentrated together in a slightly smaller area bounded by Features 2, 3, 4, and 14. The highest density clusters of lithic debris overlapped with these concentrations of aborted bifaces, cores, and possible stone working tools. Therefore, some amount of stone tool manufacture must have taken place in the Midden Block, especially at the northern end of the block. When the SYMAPs for the entire site were examined, the area immediately northwest of the Midden Block exhibited the

highest lithic debris concentration; apparently, the northern end of the block encompassed the edge of this larger concentration.

The distribution of unifaces contained some interesting associations. For instance, denticulates and graters tended to cluster together in and around Features 3 and 4, and immediately west of Feature 5. The possibility that these areas represented loci where bone tools were manufactured prompted comparisons with maps of the distribution of bone tools. Only two definite ornamental bone pieces were found, as well as some

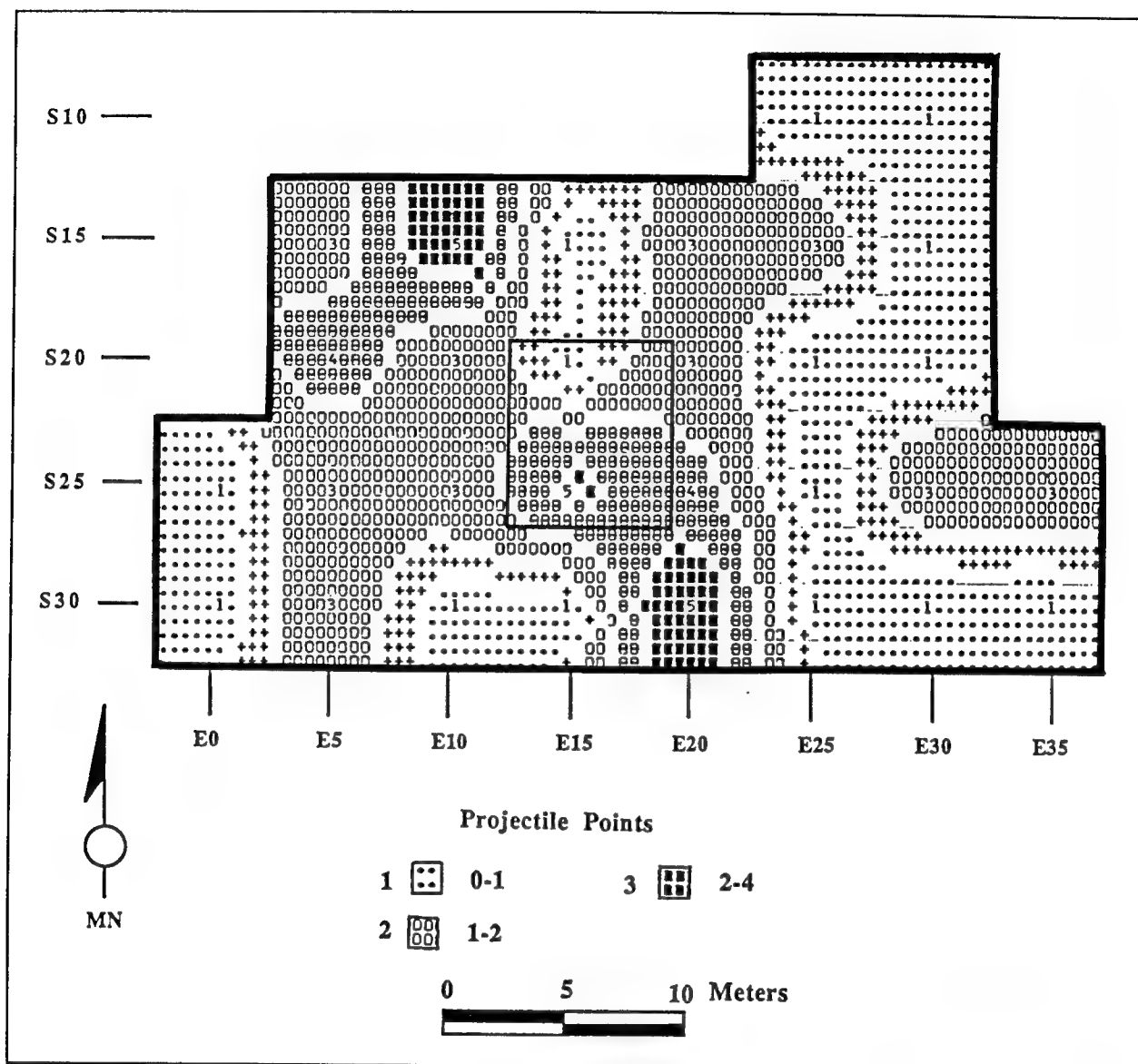


Figure 7-26. SYMAP showing the distribution of projectile points at 41DT124: the Doctors Creek site, based on data from 50 x 50 cm (19.7 x 19.7 in) units.

fragments with parallel wavy lines spaced at 1.5 mm intervals that might have been engraved. One of the ornamental pieces was highly polished and had an "X" engraved on one side; it was found in Unit 84, which also yielded a graver. The engraved fragments were found in Unit 90, which was adjacent to two units containing graves. Although the sample size is small, the evidence suggests that bone was decorated to some extent.

End and sidescrapers tended to cluster in the northern half of the block and in the southwest corner, where the two bifacial scrapers also occurred. Bone tools with conical tips may have functioned as stakes for staking out hides to be worked (Bonnie C. Yates, personal

communication 1987), so their distribution was compared with that of scrapers. However, no obvious patterns of overlap were observed. From the distribution of stone tools associated with hide working, butchering, and bone working, it appears that the entire gamut of animal processing occurred in the area surrounding the large features recorded in the Midden Block. Hides were worked with scrapers, bones were worked with knives, denticulates, and graters, and meat was probably roasted in the pit features. Judging from the quantity of plant remains recovered from these features, it also appears that nuts and tubers were processed.

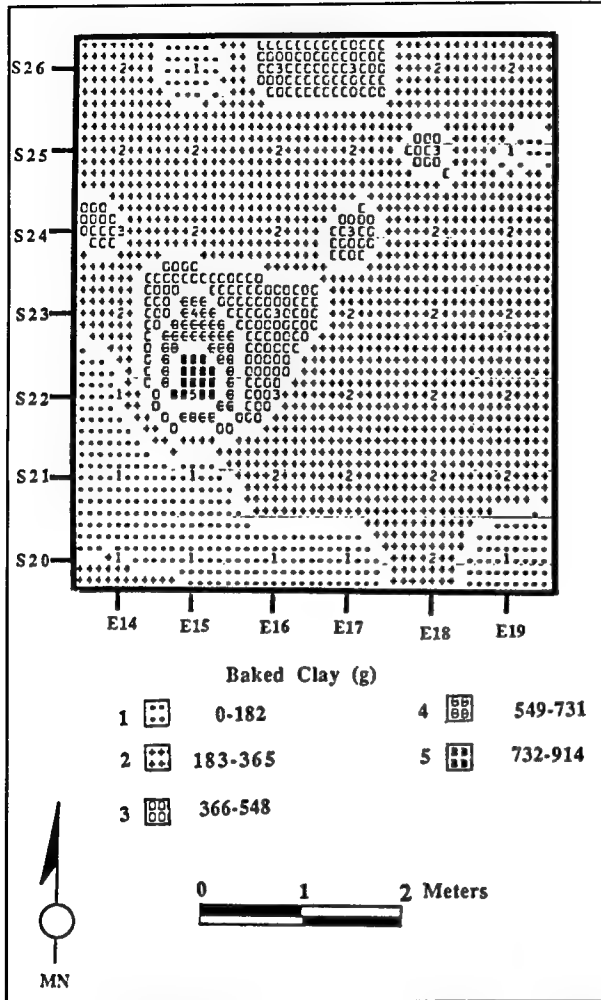


Figure 7-27. SYMAP showing the distribution of baked clay in the Midden Block at 41DT124: the Doctors Creek site, using the default option.

The SYMAP results indicate that a variety of domestic tasks associated with daily maintenance (i.e., processing animal and plant foods, cooking, hide preparation, and stone tool manufacture, etc.) were conducted within the area encompassed by the Midden Block. The concentration of pit features containing evidence of cooking and/or roasting support this idea. It is possible that these activities were conducted north of a structure or structures, since postholes were present along the southern end of the block, in Trench 10 near the southeast corner, and in the scraped area immediately south of the balk surrounding the block. No house patterns could be identified from the posthole distributions, but this fact does not mean that no structures were built. The fact that all postholes recognized at the site were concentrated in this one portion of the site, an area measuring roughly 6 x 6 m (19.7 x 19.7 ft), suggests that

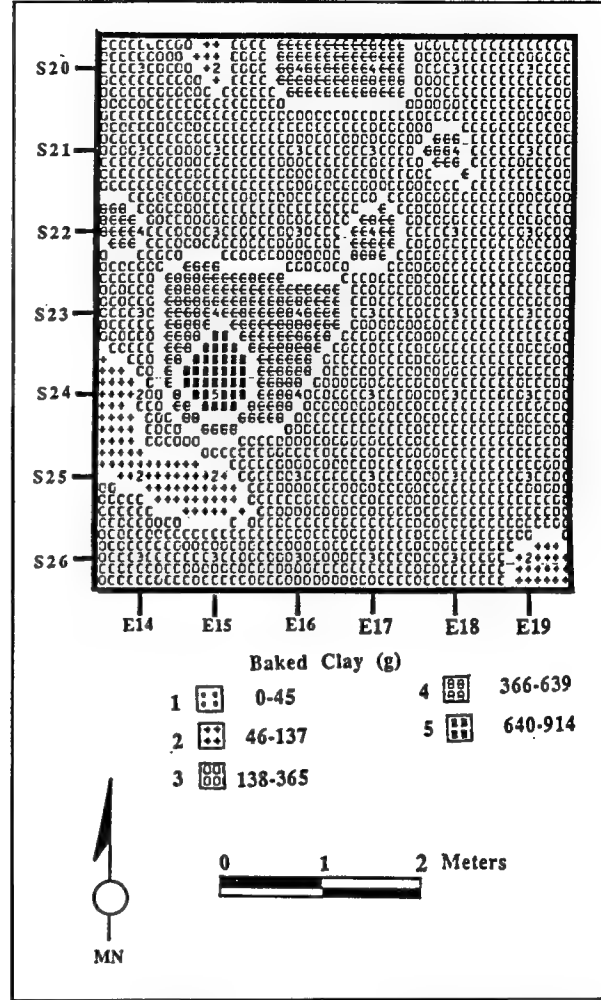


Figure 7-28. SYMAP showing the distribution of baked clay in the Midden Block at 41DT124: the Doctors Creek site, using the enhanced high percentages method.

a dwelling (or dwellings) may have been present on this portion of the site.

In the absence of definable house walls, this interpretation is simply a hypothesis. Therefore, no attempt was made to assess cultural behavior on a household level. Nevertheless, the fact that the site's only grinding slab (presumably a household tool used for the preparation of vegetal staples) occurred in the area between posthole Features 23 and 31 lends support to the idea that some type of domicile stood on this portion of the site. If this hypothesis is correct, then the features and artifact clusters in most of the Midden Block would have represented outdoor work areas associated with one or more dwellings south of the block.

Although the SYMAPs derived from 50 x 50 cm (19.7 x 19.7 in) units did not detect high density clusters over the hypothesized house area, like the pattern exhibited by

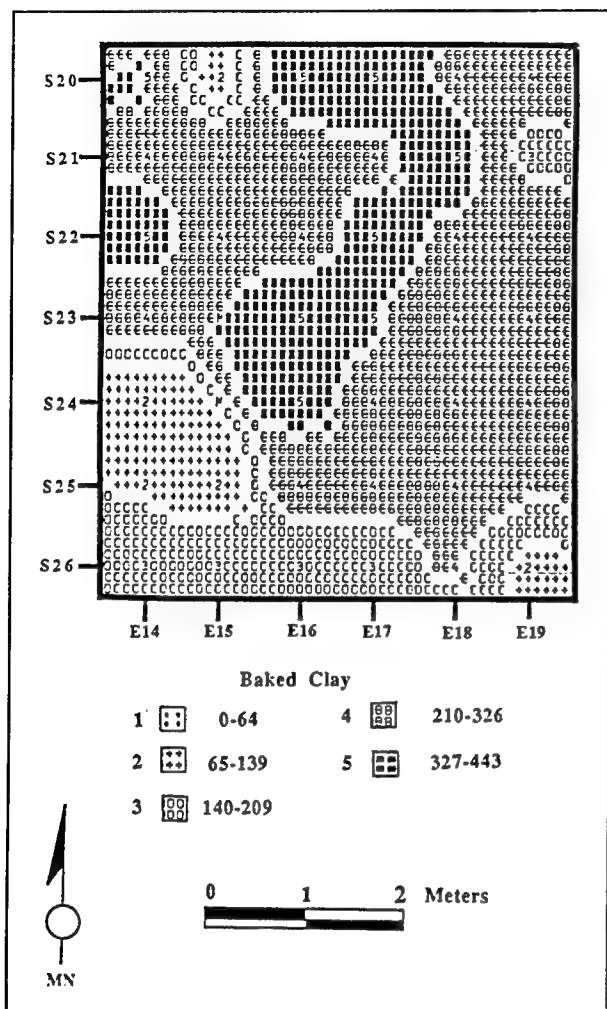


Figure 7-29. SYMAP showing the distribution of baked clay in the Midden Block at 41DT124: the Doctors Creek site, using the histogram method.

the Caddoan houses at the Hines site or House 1 at Bird Point Island, it is still possible that less substantial structures stood there. A pattern similar to that observed over House 1 would only be expected if the structure had been occupied for a long period of time. House 1 exhibited evidence of rebuilding, denoting extended occupation, whereas the other two structures at Bird Point Island, which both exhibited clear posthole patterns indicative of substantial structures, did not show signs of rebuilding and did not show up as SYMAP clusters for many artifact classes.

Another possibility for the lack of clusters over the hypothesized structure could be due to sampling error, since only two of the 50 x 50 cm (19.7 x 19.7 in) units fell within the area of the hypothesized structure along the southern edge of the posthole scatter. Finally, most household activities may have been conducted outside of

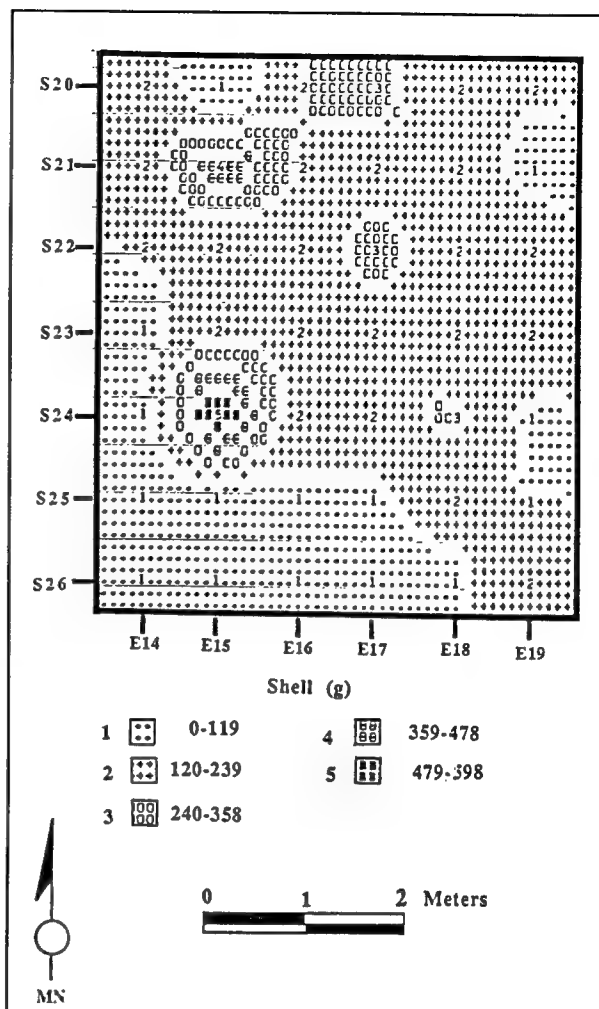


Figure 7-30. SYMAP showing the distribution of mussel shell in the Midden Block at 41DT124: the Doctors Creek site, using the default option.

the structure, especially during summer occupations, or the evidence of indoor activities may have been swept outside the structure. The pattern observed at the Cobb-Pool site provides support for this explanation. The structures at Cobb-Pool were located in areas with relatively low artifact densities, while the highest densities occurred in the outdoor area in between structures.

To summarize, the Midden Block SYMAPs were useful for identifying patterning in clusters of tools and debris commonly associated with domestic maintenance chores. Some classes associated with cooking and/or roasting were concentrated over features that were classified as roasting pits on the basis of shape, size, and content. For some artifact classes, such as bifaces and uniface, SYMAP clusters located between features suggested that specialized work areas existed, then the specific activities became more clear after specific tool

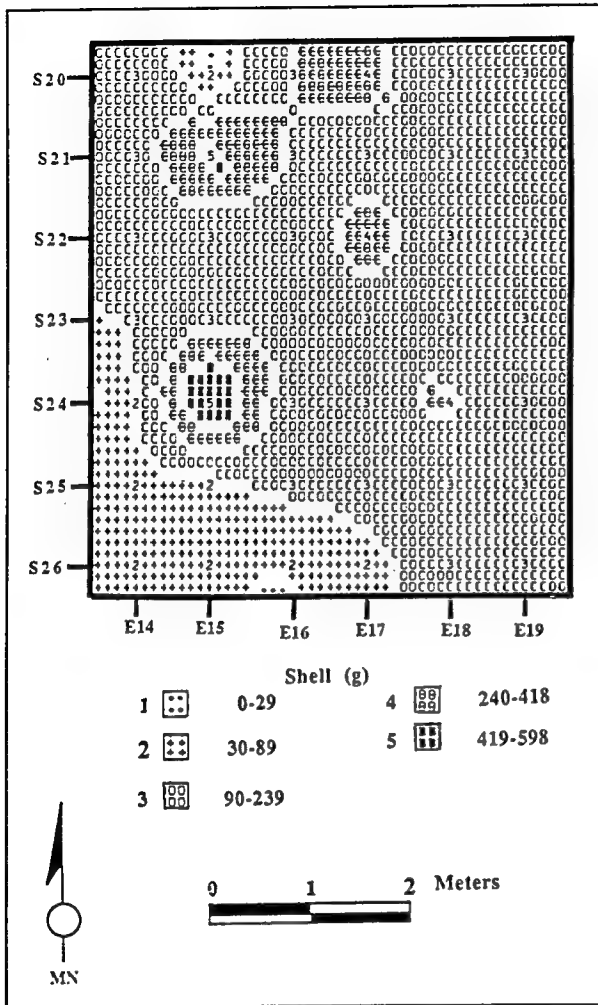


Figure 7-31. SYMAP showing the distribution of mussel shell in the Midden Block at 41DT124: the Doctors Creek site, using the enhanced high percentages method.

types were plotted by hand. Evidence of cooking or roasting, hide working, bone working, and some lithic reduction was observed, particularly within the northern half of the Midden Block. The presence of a structure south of the block was hypothesized on the basis of postholes, but no definite house pattern was visible.

Ceramic Spatial Data

The horizontal distribution of the specific ceramic types was plotted in an attempt to determine if any degree of horizontal segregation of components could be detected. However, no patterning was observed. Grog and small grog tempered sherds occurred together in almost every unit. Bone tempered sherds were scattered throughout the Midden Block, and were also present in the far southwestern 50 x 50 cm (19.7 x 19.7 in) unit (Unit

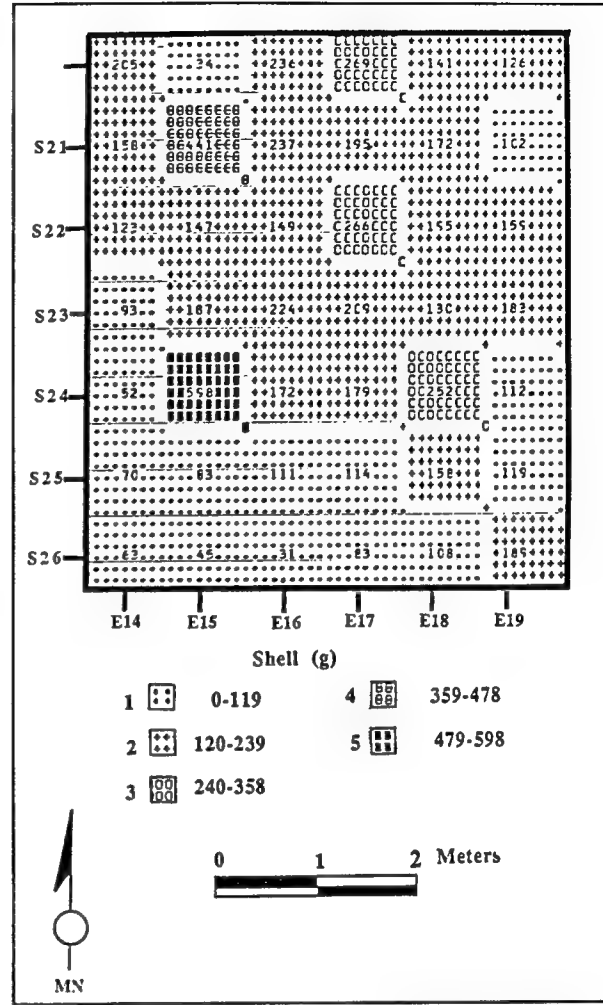


Figure 7-32. SYMAP showing the distribution of mussel shell in the Midden Block at 41DT124: the Doctors Creek site.

26), in Unit 21 at the northern end of the site, and in Unit 54 at the eastern edge of the study area. Thus, bone tempered sherds could not be isolated as a concentration. The two shell tempered sherds were only about 4 m (13.1 ft) apart, along the east edge of the Midden Block. In light of the distribution of ceramic types and projectile point types, there does not appear to be any horizontal spatial separation of chronological occupations.

Despite the inability to distinguish horizontal separation of components, the ceramic analysis did provide additional spatial data offering insights into factors influencing the horizontal distribution of artifacts. During attempts to refit broken pottery, crossmends between sherds from different units and levels were recognized. The results of this study demonstrated that artifacts have been subjected to horizontal and vertical displacement, probably due to discard behavior during the

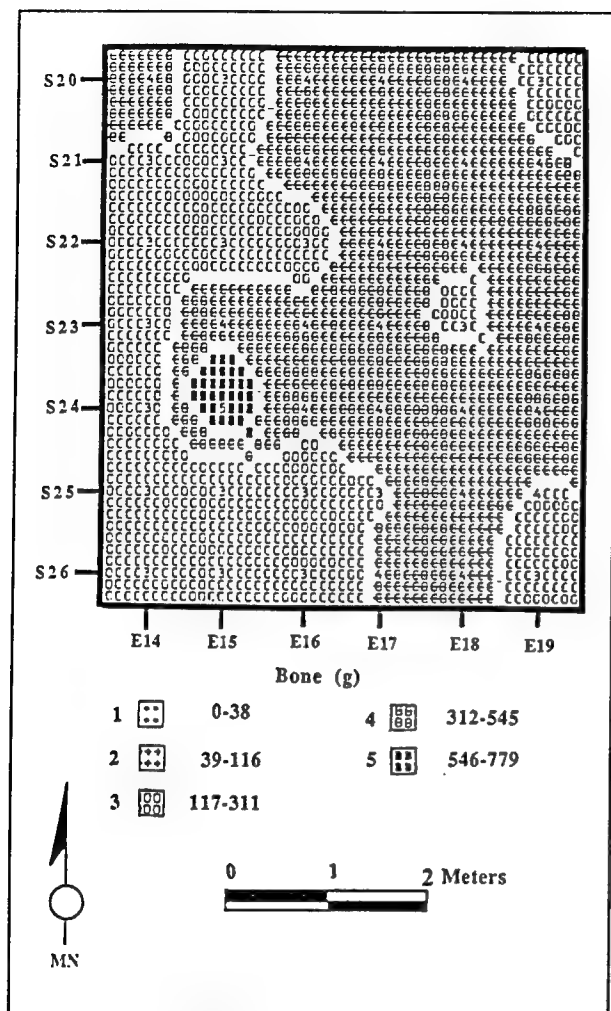


Figure 7-33. SYMAP showing the distribution of bone in the Midden Block at 41DT124: the Doctors Creek site.

period of site occupation and to plow movement during nineteenth and twentieth century farming.

First of all, two small-grog tempered sherds with the design element designated as Incised Zoned Punctate I were recovered from the midden. One was found in Zone I of Unit 30, whereas the other was found 10 m (32.8 ft) to the east in the bottom of Feature 5 (Unit 77, Level 6). The sherd in the feature fill must have been included during the time the site was occupied, probably unintentionally as secondary refuse used to fill the pit. The 10 m (32.8 ft) separation between the matching sherds suggests either that the pieces of the broken pot were not discarded together in the same refuse heap, or that refuse was scooped up near Unit 30 for use as fill in Feature 5. In any event, this case illustrates the fact that prehistoric discard behavior can complicate interpretations of activity areas based upon horizontal artifact patterning.

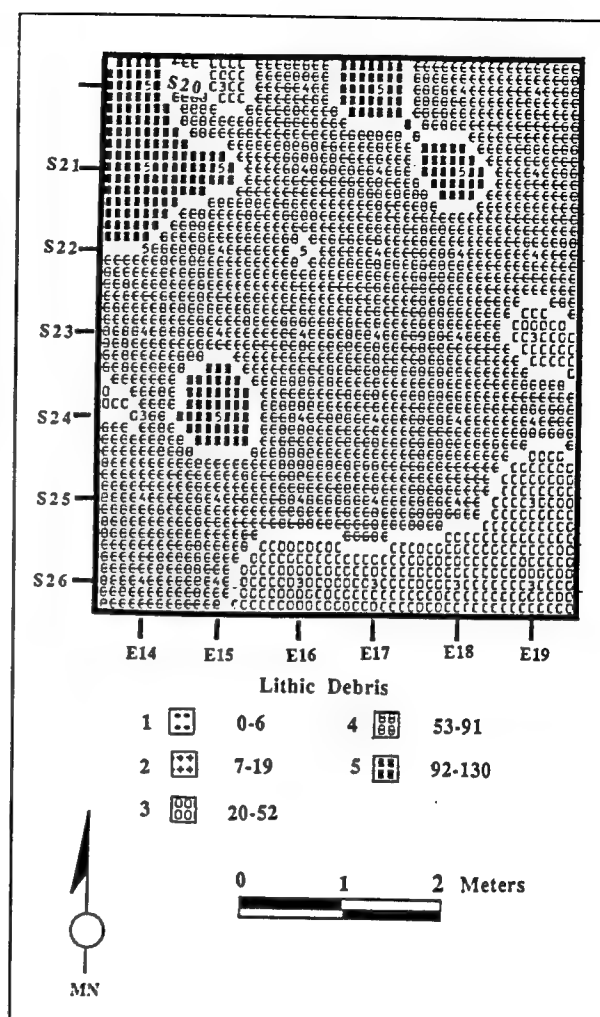


Figure 7-34. SYMAP showing the distribution of lithic debris in the Midden Block at 41DT124: the Doctors Creek site.

Evidence for the lateral movement of artifacts due to plowing was noted among some of the units within the Midden Block. For instance, in the case of two small-grog tempered, burnished sherds that fit together, one was from Unit 82, Level 2, whereas the other was found 1-2 m (3.28-6.6 ft) northeast in Unit 91, Level 1. Likewise, this same degree of movement was observed between two grog tempered, burnished sherds in Unit 99, Level 1 and Unit 101, Level 1. The fact that the horizontal displacement was limited to the upper two levels (e.g., the depth of the plow zone), coupled with the fact that separation of the sherds was less than 2 m (6.6 ft), suggests that plowing displaced the sherds. Studies of artifact displacement resulting from plow action have indicated that surface collections can control for plow movement if units of 4 m (13.1 ft) are used (Lewarch

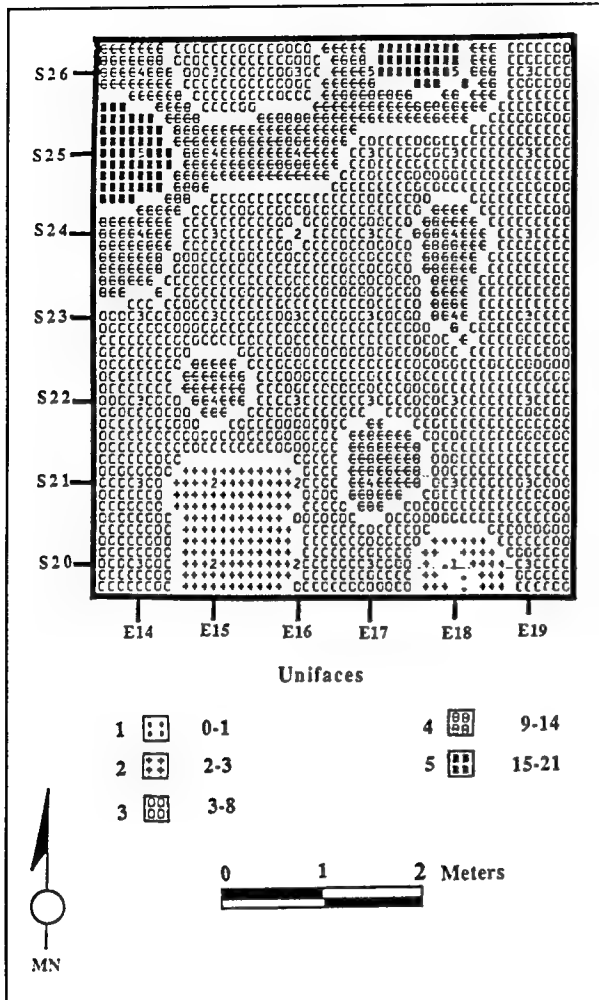


Figure 7-35. SYMAP showing the distribution of unifaces in the Midden Block at 41DT124: the Doctors Creek site.

1979), so the observed horizontal movement falls within the range expected for plow disturbance.

INTERPRETIVE SUMMARY

Five problem areas were examined with data from the Doctors Creek site: (1) assessment of chronology, (2) definition of architectural and cultural features, (3) identification of intrasite activities, (4) description of subsistence behavior, and (5) assessment of seasonality and duration of occupation. Some of these problem areas were not easily addressed at the Doctors Creek site. For instance, even though postholes were found which were undoubtedly related to structures, these structures were not substantial and no house patterns were defined. On the other hand, sufficient data were recovered to address problems related to the study of intrasite functional variability, subsistence behavior, seasonality, and duration

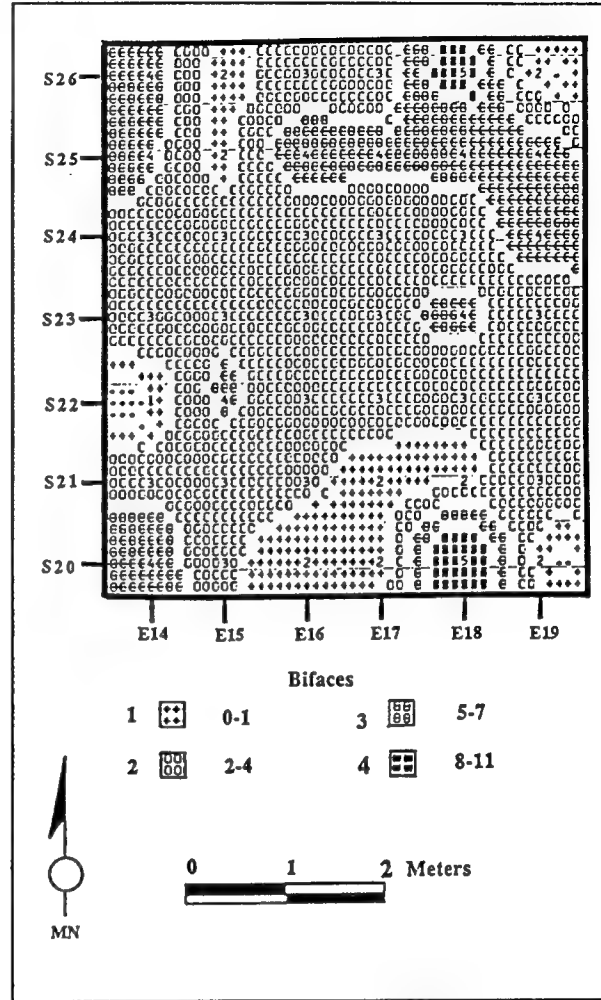


Figure 7-36. SYMAP showing the distribution of bifaces in the Midden Block at 41DT124: the Doctors Creek site.

of occupation.

First, a brief summary of the chronological data (i.e., radiocarbon dates, projectile point types, and ceramic types) is presented. Then the cultural features and spatial patterning associated with the Early Caddoan occupation are discussed, since most of the data appear to be related to this occupation. Finally, the faunal and floral data are used to assess subsistence strategies and seasonality of occupation.

Chronology

Some colluvial aggradation appears to have occurred along the base of the terrace slope as a result of erosion caused by historic period agricultural practices. This colluvial deposition was inferred from the fact that severe erosion has depleted the topsoil along much of the terrace slope, and that artifact densities within the midden were

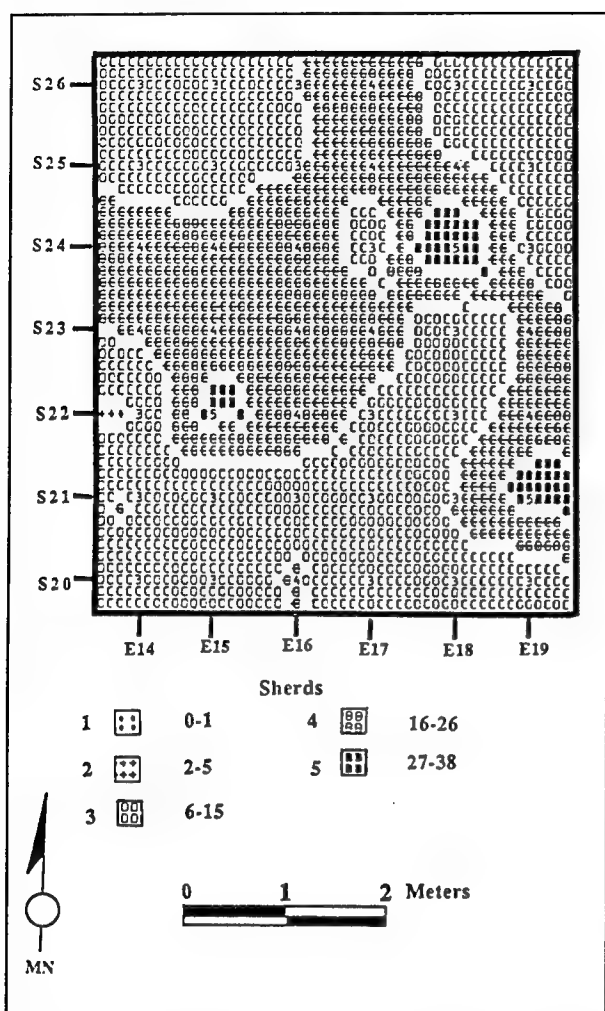


Figure 7-37. SYMAP showing the distribution of ceramic sherds in the Midden Block at 41DT124: the Doctors Creek site.

lower in Level 1 than in Level 2, presumably as a result of the addition of colluvial sediment. However, there was no vertical separation of components over most of the site, except for the strip along the floodplain where evidence of alluvial aggradation was noted. Within this area of alluvial aggradation, a trend toward a vertical separation of Early Ceramic and Early Caddoan materials was noted, although some degree of mixture had occurred due to an intrusive burial and the effects of natural soil disturbances. In light of this relative lack of vertical stratigraphy, assessment of chronology was limited to examination of ceramic and projectile point types, and collection of radiocarbon samples from features.

Although there is evidence of recurrent occupations at the Doctors Creek site during the course of several centuries, from the Archaic through the Caddoan periods, only one major period of site occupation (e.g., the Early

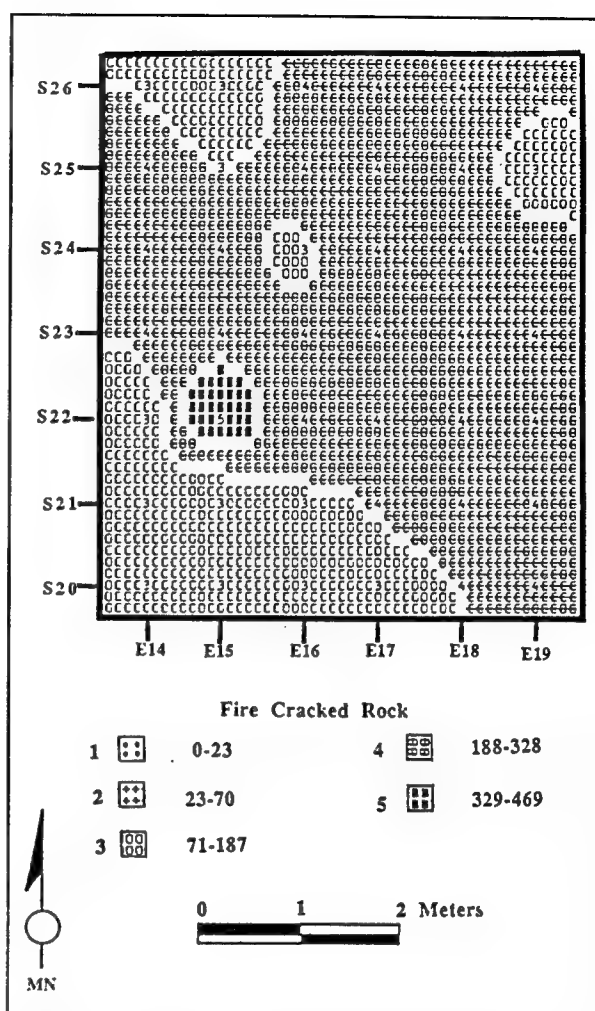


Figure 7-38. SYMAP showing the distribution of fire-cracked rock in the Midden Block at 41DT124: the Doctors Creek site.

Caddoan) was dominant. The projectile point and ceramic types found at the site fit well with either the Early Ceramic period or the beginning of the Early Caddoan period, but on the basis of radiocarbon dates from features within the midden, only the Early Caddoan period is detectable. Radiocarbon dates within the range of the Early Ceramic period were obtained from the deep deposit adjacent to the floodplain, but the standard deviations were so broad that they were not very useful for building the site chronology.

The earliest occupation documented at the Doctors Creek site was marked by the presence of an Archaic period straight stem dart point that had barbs similar to Calf Creek and Marshall points, but which varied too much from these types to be included with them. It provided good evidence for Early to Middle Archaic period occupation, but no specific estimate of date ranges

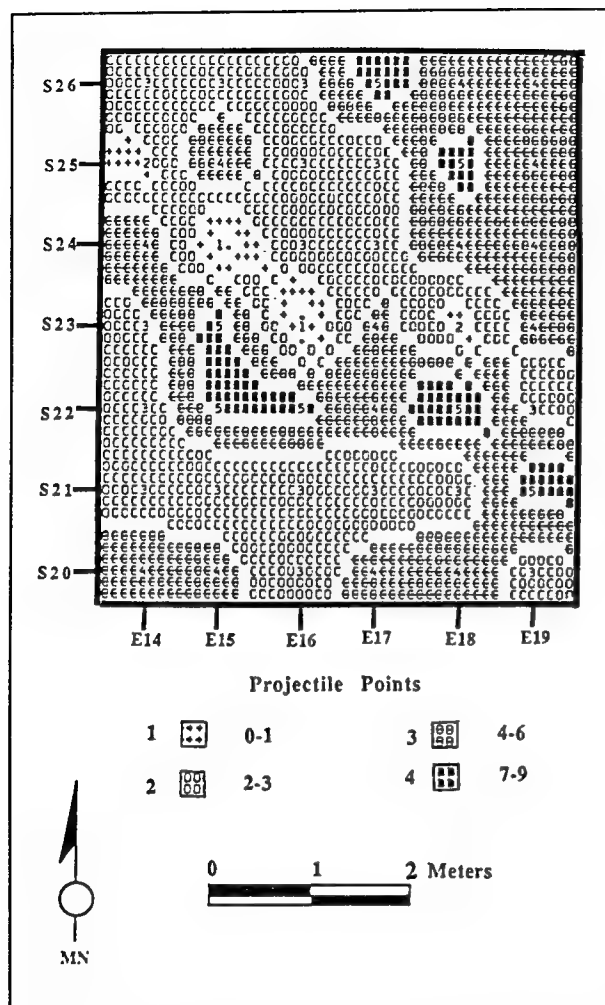


Figure 7-39. SYMAP showing the distribution of projectile points in the Midden Block at 41DT124: the Doctors Creek site.

could be made. Evidence for Late Archaic period occupation included two Elam dart points. Evidence for Archaic period occupation was sparse, suggesting that occupations were short-term and infrequent during that period.

The next period of occupation occurred during the Early Ceramic period, beginning at some unknown point following the Late Archaic period and ending sometime before A.D. 1000. Although more substantial than the Archaic period occupations, it was difficult to assess the relative intensity of Early Ceramic occupation due to a lack of radiocarbon dates and an inability to isolate specific ceramic or projectile point types limited solely to this period. The majority of identifiable sherds found at the Doctors Creek site (55%) were made from thick, coarse, grog tempered paste, and included square base sherds and base sherds with slightly outflaring bases.

These traits are characteristic of Williams Plain pottery which was manufactured from the Early Ceramic period into the Early Caddoan. Likewise, the published date ranges for the arrow point styles identified at the site stretched from the latter portion of the Early Ceramic period well into the Early Caddoan period. No vertical or horizontal spatial separation of these components was recognized at the site, and this lack of separation complicated the assessment of occupation intensity for each period.

Following the Early Ceramic occupation, an intensive Early Caddoan occupation occurred sometime between A.D. 973-1221. This is a 248 year time span and undoubtedly the site was not continuously occupied for this period. Radiocarbon dates placed all five dated features within the Early Caddoan period. Since several artifact concentrations corresponded closely with these dated features, the Early Caddoan component is believed to represent the most intensive occupation of the site. SYMAPs exhibited artifact clusters for certain classes, such as baked clay, directly over some of these dated cultural features. Other tools were concentrated in clusters in between features, suggesting that maintenance activities were conducted around the features. This close correspondence between artifact distributions and the dated features suggests that the Early Caddoan occupation was responsible for the deposition of most of the artifacts and creation of most of the features found at the site.

Arrow points from the Early Caddoan dated contexts included Alba-like, Friley-like, Steiner, and several untyped varieties. Gary dart points were also associated with this occupation. Coarse grog tempered Williams Plain pottery was found in these dated contexts, along with small grog tempered and fine bone tempered wares. Many of these types were also in use during the Early Ceramic period, so the assessment of occupation intensity for each component is tenuous. Although some mixture of Early Ceramic and Early Caddoan components undoubtedly occurred, the spatial relationships observed between artifact concentrations and Early Caddoan features provide the best line of evidence supporting the hypothesis that the Early Caddoan component formed the dominant occupation.

The final period of occupation began sometime after A.D. 1221 and persisted for an indeterminate length of time. No radiocarbon dates were obtained for this occupation, nor were any late projectile point types found; its existence was marked by small quantities of grit temper and shell temper wares, as well as a small sample of sherds decorated by means of engraving. This small quantity of material believed to date to the Late Caddoan period probably represents some minor, short-term occupation.

Cultural Features

Twenty-four cultural features were recognized at the Doctors Creek site; including postholes, pits of various shapes and sizes, hearths, artifact clusters, and graves. One flexed burial was found in the deep deposit, and one extended burial was found southeast of the Midden Block. No mortuary furniture was associated with either interment. No house patterns were recognized among the distributions of postholes, but the localized occurrence of postholes is taken as indirect evidence that a structure or structures had probably been constructed. With the exception of Feature 1, found 50 cm (19.7 in) below surface in the deep deposit, most features probably date to the Early Caddoan period, between about A.D. 973-1221.

Comparison of the flotation sample taken from a non-feature context (Unit 107, Level 3) did not appear to be significantly different from samples taken from within many features. Interpretations of feature function were complicated by the fact that cultural materials deposited within the general midden entered into feature fill by means of secondary deposition. Therefore, only feature contents that varied dramatically from that of the control sample were used to assess function. For example, cultural features that contained inordinately high percentages of charred nutshell and other plant remains, baked clay, and fire-cracked rock were interpreted as roasting pits. Size and shape were also used for classifying some features, such as postholes.

No evidence of structures or features could be directly related to the Late Archaic, Early Ceramic, or Late Caddoan period occupations. The only features dated by means of radiocarbon assay were features dating to the Early Caddoan period. On the basis of the correspondence between the horizontal distribution of dated features and artifact concentrations, most features and activities represented by the archaeological deposit are believed to date to the Early Caddoan period. This includes the postholes assumed to represent portions of a structure or structures.

Subsistence

The Early Caddoan subsistence strategy was inferred from the plant and animal remains recovered from the dated features. Most of the diet consisted of wild plants and animals, characterized by a heavy reliance on deer, turtle, birds, and cottontail rabbit, along with hickory nuts, pecans, acorns, *Psoralea* (?) tubers, and seeds. However, this hunting and gathering subsistence strategy was supplemented by domesticated plants. Maize was very rare, with minuscule amounts confined to only five proveniences, but squash (*Cucurbita sp.*) rind was quite

common. The thickness of the rind did not appear to be representative of local species of wild gourd and the cell structure was identical to that of modern squash (see Appendix G). Therefore, domesticated squash was available, either through trade or as a result of local cultivation.

Most other features, apart from the few dated features, also contained these subsistence items. This trend suggests either that most other features also dated to the Early Caddoan period, or that subsistence strategies remained relatively unchanged over time. On the basis of existing data, it is not possible to determine which possibility is correct.

In most respects, the subsistence pattern observed at the Doctors Creek site was very similar to that observed among assemblages from sites in the Richland Creek drainage. This is not surprising, considering that the Richland Creek drainage and the Cooper Lake area both lie within the same ecological zone, the Post Oak Savannah. At Richland Creek, it was hypothesized that a specialized adaptation to the Post Oak Savannah had evolved in which local human groups became very adept at exploiting the seasonally abundant wild plant and animal foods found in that environment (Bruseh et al. 1987). Bands gathered in the fall to collect and process the vast supply of mast produced by oaks, hickories, and pecans. Later, in the spring and early summer, they gathered to collect and process prairie turnip tubers. Changes in population levels and environmental conditions over time caused these groups to alter their collection strategies and choice of species. During the A.D. 1000-1200 period, they became so successful at exploiting the local resources that they were able to sustain sedentary, or semisedentary, hamlets without recourse to agriculture. Prior to about A.D. 1300, maize was non-existent; after that time, it was introduced in small quantities to supplement a depleted resource base resulting from a climatic shift toward drier conditions (Bruseh et al. 1987:254). Feature 14 at 41DT124 was a hearth that contained the highest quantity of maize (only 0.4 g) from any feature at the site. A radiocarbon sample of carbonized nutshell yielded a date of A.D. 1190 \pm 30 (SMU 2026, corrected). This date is identical to that of Feature 2 at site 41DT124 and strongly suggests the limited use of maize during the period from 1157-1221. This suggests that the interpretations presented in Bruseh et al. (1987:254) for the Richland Creek area do not necessarily apply to the Cooper area.

The major difference between the floral assemblages from the Doctors Creek site and the Post Oak Savannah sites along Richland Creek is that the quantities of squash rind were much higher at Doctors Creek, and other Cooper Lake sites, than at any of the Richland Creek sites.

Whereas the Richland Creek groups appeared to have adapted to the Post Oak Savannah without incorporating domesticates until very late in the archaeological record, the inhabitants of the Doctors Creek site relied relatively heavily on squash as early as the Early Caddoan period. The reason for this reliance on squash in the Cooper Lake vicinity is unknown at present, and can only be addressed when additional data are collected.

Maize apparently never contributed significantly to the diet of the Doctors Creek site inhabitants, at least during the seasons that they occupied the site. It is impossible to state with assurance that maize was never important, since there is no firm evidence demonstrating that the site was occupied on a year-round basis. If other sites, as yet to be discovered, served as summer camps for the Doctors Creek inhabitants, they might yield higher frequencies of maize. To date, there is no evidence from any site at Cooper Lake demonstrating that local maize agriculture was practiced, but firm conclusions cannot be reached until more data become available.

Intrasite Activities

The distribution of features with known functions and the co-association of artifact classes across the site permitted the recognition of those activity areas believed to have been associated with the Early Caddoan period occupation. The evidence indicates that the midden area was used for a wide variety of activities including roasting and food processing, lithic reduction, hide working, and bone working. Roasting pit Features 2, 4, and 5 found within the Midden Block contained high densities of baked clay and fire-cracked rock, as well as bone and shell. The A horizon over and around these roasting pits also contained concentrations of these items that were apparent on the SYMAPs. Clusters of aborted bifaces and bone tools associated with stone tool manufacture indicate that lithic reduction took place. However, the area immediately northwest of the Midden Block contained the largest, densest cluster of lithic debris found at the site, indicating that it was the primary locus of lithic reduction. Scrapers associated with hide working, and graters associated with bone working were also found in the area between the features.

The area south of Feature 5 and continuing south of the Midden Block was another multiple use area that may have been the location of a habitation. The co-occurrence of artifacts, postholes, and a possible hearth (Feature 22) all suggest that one or more structures stood in this area. It is clear from the number of features and the quantity of debris associated with the Early Caddoan period that substantial long term occupation occurred. The lack of

house patterns indicates that the structures used during this period were not very substantial.

The area southwest of the Midden Block exhibited the co-association of several high density artifact clusters, yet no features were observed when the area was scraped. It is possible that A horizon roasting areas with no manifestations in the B horizon produced the high density fire-cracked rock clusters. These areas may have represented the initial development of large roasting pits like Feature 5, or perhaps, a different kind of processing limited to surface activity.

Seasonality And Duration Of Occupation

Floral and faunal data suggest that the site was occupied during both the spring and the fall. The principal plant foods in the assemblage are complementary from the standpoint of harvesting; spring species, such as vetch and *Psoralea* sp., and fall species, like nuts and acorns, are present together in the assemblage. Turtle and mussel would have been exploited in the summer or fall, when the creeks were low. Deer could have been taken at any time during the year, since no clear indicators of seasonality were found; however, they were probably taken in the fall when deer congregate in areas with high mast yields.

Whether or not the Early Caddoan component was characterized by permanent settlement or seasonal occupation is unknown. Evidence hinting that permanent settlement occurred included the presence of sherds that appeared to be kiln wasters (i.e., sherds that broke as a result of firing mistakes) suggesting that pottery manufacture occurred on the site. However, since only three such sherds were found, and since the manufacture of pottery may not always correlate on a one-to-one basis with permanent occupation, this evidence is tenuous. The substantial midden and presence of burials suggested that relatively long term occupation occurred, but recurrent seasonal occupations could have produced the same sort of deposit. The fact that no permanent houses were found is the best evidence arguing against permanent year-round occupation. The lack of substantial structures suggests that shorter seasonal occupations occurred. If so, then the number of features and deposition of so many artifacts would imply that the Doctors Creek site was formed by numerous short-term occupations. The range of the radiocarbon dates from dated features indicate that the most intensive occupations occurred over a maximum span of 248 years from A.D. 973-1221.

The low quantity of later period artifacts observed at the site suggests that occupation after A.D. 1221 was very limited and sporadic. Although some ceramic evidence

(i.e., shell temper) indicates that limited occupation occurred after this date, there are no clear indicators of a terminal date for this occupation, since no radiocarbon

dates or temporally diagnostic projectile point or ceramic types relating to this period were recovered.

ARCHAEOLOGICAL INVESTIGATIONS AT 41HP137

Daniel E. McGregor

with contributions by Timothy K. Perttula
and Cathy J. Crane

8

SETTING

This small site, discovered by shovel testing during the 1987 survey, is situated at the toe of a northwest trending upland ridge just south of, and across a small drainage from, Hurricane Hill. The site was about 500 m (1640.4 ft) south-southeast of the main prehistoric occupation of 41HP106, and about 200 m (656.2 ft) due south of site 41HP136. Beginning at the northern edge of the site and continuing downstream, the small drainage had been channelized and a low, man-made levee was present along its south bank. The site area ranges between 125 m (412 ft) and 127 m (417 ft) amsl. Ground cover consists of short grasses with a few scattered small trees. The northern edge of the site is covered with larger trees and brush, including a few oaks. Surface visibility was poor during field work and cultural material could only be located in shovel tests. The soil association is Woodtell loam (Lane 1977) which consists of ca. 20-25 cm (7.9-9.8 in) of loamy soil over a sandy clay.

EXCAVATION STRATEGY

During its initial recording, a series of seven shovel tests, in addition to the original one that located the site, was used to obtain an initial estimate of site size and depth. Three of these shovel tests contained a total of nine flakes, one core, one biface fragment, and seven

fragments of fire-cracked rock, indicating that the main portion of the site (Figure 8-1) is limited to an area of only about 60 m² (196.8 ft²); 7.5 m (24.6 ft) north-south by 8 m (26.2 ft) east-west. This shovel testing also showed that the main site area consists of about 20-25 cm (7.9-9.8 in) of cultural deposit over a sandy clay subsoil.

An initial phase of limited test excavations followed with the excavation of seven 50 x 50 cm (19.7 x 19.7 in) units (Units 1-5, 10, and 11) and three 30 cm (11.8 in) diameter shovel test units (Units 6, 7, and 8). These provided better documentation of horizontal site limits and the intrasite distribution of artifacts. The fill from each unit was removed as a single vertical level and was screened through 6.4 mm (.25 in) hardware cloth. Also at this stage, four contiguous 1 x 1 m (3.28 x 3.28 ft) units (Units 9, 12, 13, and 14) were placed in the area of highest artifact density and excavated in 10 cm (3.9 in) vertical levels. Again, all fill was sifted through .25 in (6.4 mm) screen. The purpose of these 1 x 1 m (3.28 x 3.28 ft) units was to examine the vertical distribution of artifacts and to acquire a more representative assemblage.

Site 41HP137 was one of three possible Early Ceramic period sites considered for more extensive excavations. The initial set of temporally diagnostic artifacts from testing included Gary dart points and a few grog tempered sherds. This combination of diagnostics, combined with the limited spatial extent of the subsurface artifact scatter was seen as evidence of a single

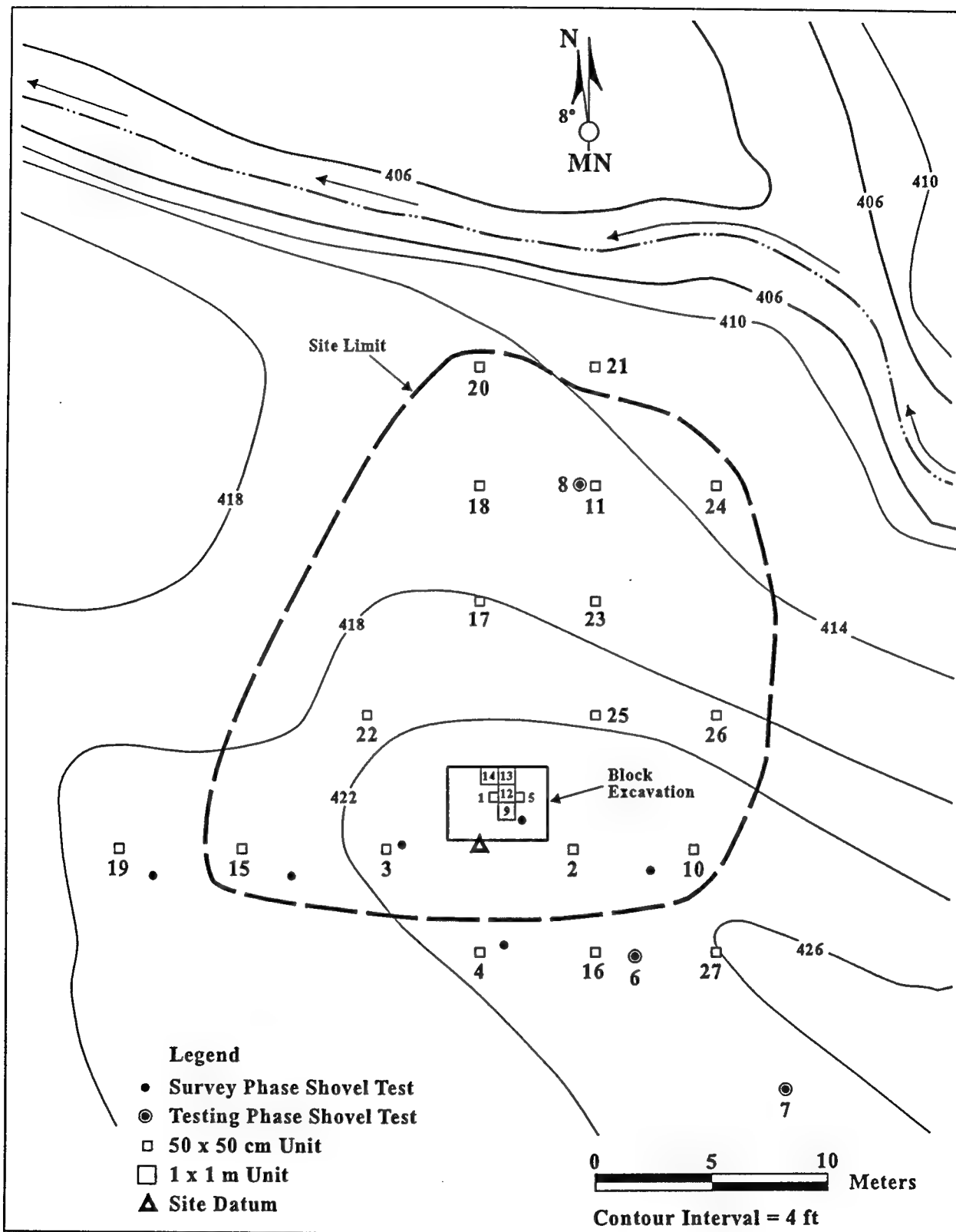


Figure 8-1. Location of excavation units at site 41HP137.

component occupation that might date to the Early Ceramic period (200 B.C.-A.D. 800). It was, therefore, somewhat unexpected when three arrow points were recovered from the four 1 x 1 m (3.28 x 3.28 ft) units. This was our initial indication that a second, and somewhat later, component might be represented.

Expanded test excavations at the other two Early Ceramic sites (41HP136 and 41HP138) also had recovered arrow points along with greater numbers of Gary dart points. Despite this fact, it still was thought that these three sites could represent single component occupations. They necessarily would date near the end of the Early Ceramic period, if the traditional timing of the introduction of arrow points can be applied to Cooper Lake.

Distinguishing between the single or multiple component interpretations depended on the acquisition of absolute dates from appropriate contexts. For this reason, the recovery of carbonized nutshell fragments from test units at 41HP137 figured prominently in our decision to conduct further work there. Neither 41HP136 nor 41HP138 had yielded appreciable amounts of datable organic materials.

These additional excavations included thirteen 50 x 50 cm (19.7 x 19.7 in) units and sixteen 1 x 1 m (3.28 x 3.28 ft) units. The 50 x 50s (Units 15-27) were placed to provide a more systematic coverage of the site area, allowing better definition of site limits and the spatial distribution of artifacts. The 1 x 1 m units (Units 28-43) completed a 4 x 5 m (13.1 x 16.4 ft) block of contiguous units within the densest part of the site (Figure 8-2). This block was located at the northwest end of the ridge landform in what appeared to be the core area of activity at the site.

As before, the 50 x 50 cm (19.7 x 19.7 in) units were excavated in a single vertical level and the fill was sifted through 6.4 mm (.25 in) screens. The 1 x 1 m (3.28 x 3.28 ft) units of the block were dug in 10 cm (3.9 in) vertical levels. A 10 liter sample of fill was collected from each level of these units, and subsequently was water screened through 1.6 mm (.06 in) mesh window screen. The remainder of the fill was sifted through 6.4 mm (.25 in) mesh screens.

All units were excavated to a depth sufficient to penetrate the clay B horizon. The two large cultural features encountered were identifiable near the base of the A horizon where their loam fill contrasted well with the lighter colored clay.

These features initially were defined and drawn in plan view, then cross-sectioned to obtain a profile, and subsequently excavated completely. Both fine-screen and flotation samples were collected from each feature, and

the remaining fill was sifted through the .25 in (6.4 mm) screens.

STRATIGRAPHY

The site area is mapped as Woodtell loam, an upland soil formed in stratified loamy and clayey sediments. A representative soil profile exhibits a loam A horizon about 23 cm (9 in) thick over a clay subsoil (Lane 1977:22). This matches the stratigraphy at 41HP137, except that the A horizon is considerably thinner than 23 cm (9.1 in) in some parts of the site. In particular, the clay subsoil was as shallow as 10 cm (3.9 in) below the surface in the western and southwestern portions of our excavation block, suggesting that some erosion of the A horizon had occurred.

Erosion of the site deposit is most apparent immediately to the north of the excavation block, where the ridge slope drops off rather steeply and the clay subsoil is covered by only a few centimeters of loam. This factor in part determined the placement of the block. Although it appears that the core area of higher artifact density continued for some distance to the north, our excavation block was restricted to the area in which the A horizon was relatively deeper and presumably more intact.

The color of the loam A horizon was sufficiently darker than that of the underlying clay so that the outlines of subsurface features that penetrated the clay subsoil were definable at the contact between these two soil zones. The upper portions of these features were far more difficult to detect, since the feature fill was of a similar color and texture as the surrounding A horizon sediments. The vertically controlled excavations demonstrated that artifacts were confined almost exclusively to the loam A horizon. Because of the presumed age of this upland landform, the surface of the site is thought to have been essentially stable (i.e., nonaggrading) during the period of prehistoric occupation. The erosion or deflation of the upper soil horizon probably occurred relatively recently, very likely as the result of modern farming practices.

ARTIFACT DESCRIPTIONS

A variety of lithic artifacts and a limited number of ceramic artifacts were recovered from the excavations (Table 8-1). The vast majority of artifacts consist of lithic debitage and fire-cracked rock. The lithic tools and the ceramics are described below. An analysis of the lithic debitage is presented in Appendix A. The following discussions list artifact proveniences with their unit and level separated by a decimal.

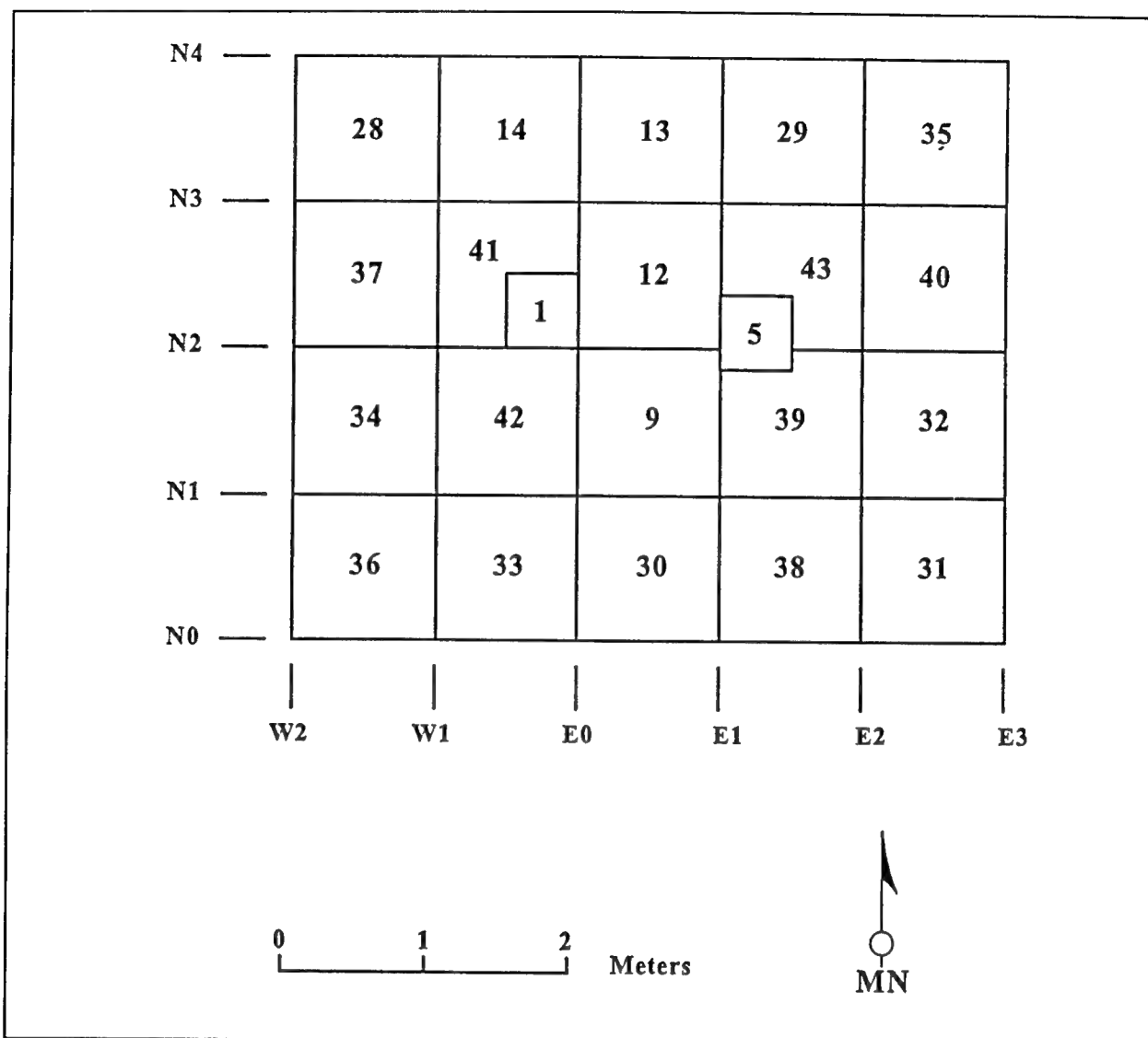


Figure 8-2. Plan view of the block excavation at site 41HP137 showing the location of excavation units.

Lithic Artifacts

Dart Points

Gary (19 specimens). The specimens in this type encompass a rather wide range of variation but are linked by their contracting stems. Where possible, they are related to the varieties of the *Gary* type recognized by Johnson (1962:161-166, 244-247) for the Yarbrough and Manton Miller sites. Four of these specimens have moderately developed, but unbarbed, shoulders. Most distinctive are their moderately contracting stems with rounded bases (Figure 8-3a). All are made of Ogallala quartzite. Proveniences: 13.1, 32.1, 37.1, 40.1. Six specimens share the characteristic of relatively long,

narrow stems with pointed or very slightly rounded bases. These are similar to the *Kemp* variety (Johnson 1962). The blade shoulders are moderately developed, but unbarbed. Three specimens have short reworked blades (Figure 8-3b). Materials: quartzite (2), jasper (1). Proveniences: 1.1, 36.1, 40.2. Two have much larger blades while another is missing much of its blade portion. Material: all are quartzite. Proveniences: 12.1(2), 37.2.

Two specimens have weakly developed shoulders, and relatively long, slightly contracting stems with rounded bases. Materials: chert (2), quartzite (1). Proveniences: 36.1, 37.1. Three specimens have broad blades with pronounced, outward flaring shoulders (Figure 8-3c). Their markedly contracting stems are triangular in outline with pointed bases. They are

TABLE 8-1

Summary Of Artifacts From Site 41HP137

Unit	Level	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Battered Stone	Ceramic	Burned Rock
1	1	2	1	—	33	—	—	—	6
2	1	—	—	—	9	—	—	—	6
3	1	—	—	—	17	—	—	—	—
5	1	—	—	—	40	—	—	1	15
8	1	—	—	—	2	—	—	—	—
9	1	4	4	2	97	—	—	—	68
	2	—	—	—	8	—	—	—	3
10	1	—	—	—	7	—	—	—	—
11	1	—	—	1	—	—	—	—	2
12	1	2	4	—	133	2	—	—	48
	2	—	—	—	2	—	—	—	2
13	1	4	1	2	137	4	—	1	67
	2	1	1	1	53	—	—	—	19
14	1	1	1	2	136	—	—	—	37
	2	1	—	—	42	—	—	—	11
15	1	—	—	—	5	—	—	—	—
17	1	—	1	—	17	1	—	1	17
18	1	—	—	1	—	—	—	3	3
20	1	—	—	—	5	—	—	—	1
22	1	—	—	—	3	—	—	—	—
23	1	—	—	—	3	—	—	—	1
24	1	—	—	—	7	—	—	1	2
25	1	—	—	—	6	—	—	—	8
26	1	—	—	—	2	—	—	—	—
28	1	3	4	1	174	4	—	5	124
	2	2	1	1	38	—	—	—	10
	3	—	—	1	2	—	—	—	2
29	1	3	1	—	63	3	—	—	32
	2	5	1	—	41	1	—	—	19
	3	—	—	1	12	—	—	—	7
	4	—	—	—	4	—	—	—	2
30	1	2	—	—	103	1	—	—	49
	2	—	—	—	1	—	—	—	2
31	1	1	1	—	69	—	—	—	17
	2	—	—	—	12	—	—	—	9
32	1	2	—	—	67	—	—	—	14
	2	2	1	—	41	—	—	—	19
	3	—	—	—	2	—	—	—	—
33	1	3	1	—	77	—	—	—	21
34	1	1	2	1	89	—	1	—	79
35	1	3	—	1	65	—	—	—	—
	2	—	1	2	53	4	—	—	33
	3	1	—	—	24	1	—	—	—

Table 8-1 (cont.)

Unit	Level	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Battered Stone	Ceramic	Burned Rock
18	4	—	—	—	2	—	—	—	3
36	1	2	1	—	77	—	—	—	19
37	1	3	3	2	119	2	—	—	87
	2	1	—	—	14	—	—	—	3
38	1	1	—	—	65	2	—	—	25
	2	—	—	—	7	—	—	—	2
39	1	—	1	—	81	—	—	—	21
	2	—	—	—	32	—	—	—	9
	3	—	—	—	6	—	—	—	2
40	1	4	—	2	84	3	—	—	35
	2	1	1	1	63	—	—	—	23
	3	—	—	1	23	—	—	—	7
41	1	3	1	—	113	1	—	—	34
	2	1	1	—	43	1	—	—	20
42	1	2	1	2	107	3	—	—	59
43	1	5	2	1	101	1	—	3	61
	2	—	1	—	33	2	—	—	18
	3	—	—	—	2	—	—	—	5
Total	—	66	38	26	2,673	36	1	15	1,206

distinctive and are identical to certain members of Johnson's (1962) Kaufman variety. Materials: all are quartzite. Proveniences: 13.2, 29.1, 29.2. The final four specimens are all relatively large and poorly finished. In these respects they are similar to specimens in Johnson's (1962) Alba variety. One specimen is made of fine-grained quartzite, while the other three are coarser grained quartzites (Proveniences: 13.1, 14.1, 14.2, 29.2).

Untyped, Straight Stem (2 specimens). One specimen has a long and relatively narrow blade, and a relatively short and wide parallel sided stem with a straight base similar to a Yarbrough (Figure 8-3d). It was made of fine grained Ogallala quartzite and was recovered from level 2 of Unit 29. The other specimen has a wider blade and is missing its distal tip. It has a longer and much narrower, parallel sided stem with a rounded base (Figure 8-3e). This specimen was made on a medium-grained quartzite and came from level 1 of Unit 9.

Untyped, Expanding Stem (1 specimen). This is the stem portion and is missing its complete blade. It was made of a high quality dark gray chert. The stem is very short and markedly expanding, and may have been formed by side notching. The base is wide and slightly convex. It was recovered from level 2 of Unit 23.

Untyped, Fragmentary (3 specimens). These three quartzite specimens are obviously the medial sections of dart points, but are missing most of their stems and the distal portions of their blades. They are not complete enough for further classification. Proveniences: 28.1, 33.1, 37.1.

Dart Point Fragments (19 specimens). These are broken pieces of bifaces whose size and configuration suggest that they are fragmentary portions of dart points. Twelve of these are distal blade fragments. Materials: quartzite (11), chert (1). Proveniences: 1.1, 9.1, 13.1,

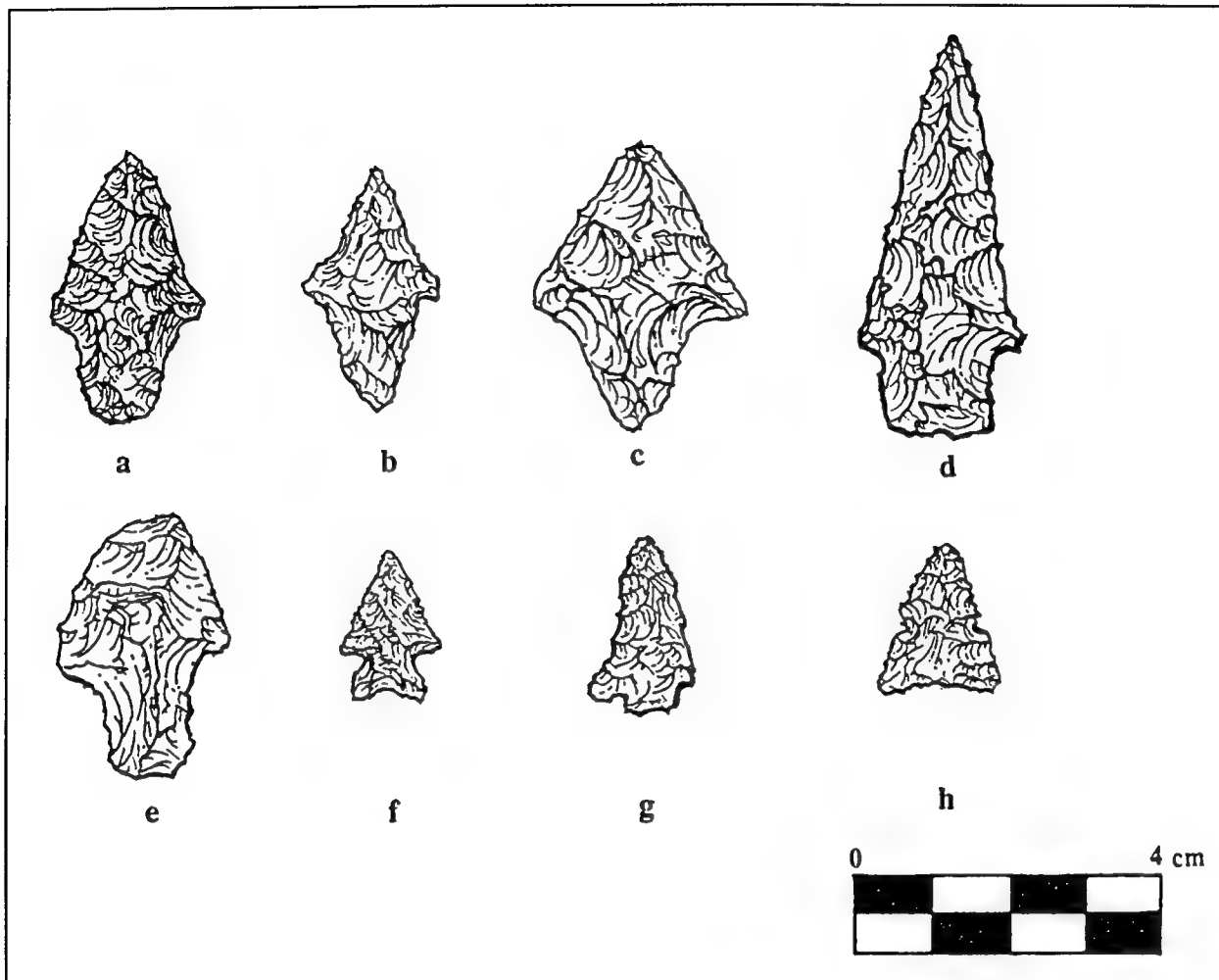


Figure 8-3. Projectile points: (a-c) Gary variants, (d) untyped square stem, (e) untyped straight stem, (f) Scallorn-like, (g) untyped straight stem, and (h) Washita-like.

28.2, 29.1, 29.2, 30.1 (2), 32.1, 32.2, 40.1, 43.1. The remaining seven are base fragments of contracting stem dart points. Materials: all are quartzite; Proveniences: 28.1(2), 32.2, 34.1, 41.1, 43.1(2).

Arrow Points

Most of the arrow points from 41HP137 do not fit well within any of the defined types (e.g., Suhm and Jelks 1962; Turner and Hester 1985). For this reason they are grouped for description initially on the basis of stem form. Similarities to established types are noted within these descriptions. Every one of the 18 arrow points and all four of the arrow point blade fragments were made of fine grained Ogallala quartzite. The arrow points from 41HP137 differ most noticeably from those in the 41DT80 and 41DT124 assemblages in their almost

complete lack of well serrated blade edges. Serrated blade edges were common among the arrow points from these other two sites.

Expanding Stem Forms (6 specimens). All six specimens have relatively short expanding stems formed by corner-notching, and on that basis could be described as "Scallorn-like". However, four of them have rather wide and flared shoulders with slightly rounded or squared-off barbs. In this attribute these four are similar to some members of the Catahoula type (Figure 8-3g). All four have convex, or slightly convex, bases. Proveniences: 29.1, 40.1 (2), 43.1. The two other specimens have much narrower blade shoulders and fit somewhat better within the Scallorn type (Figure 8-3f). One of these has a concave base, while the base of the other is convex. Proveniences: 41.2, 42.1.

Straight Stem Forms (5 specimens). Two of these specimens have outward flaring shoulders. Although neither blade is complete, both specimens exhibit some serrations along the blade edges. Proveniences: 9.1, 35.1. Two other specimens have short rectangular stems and downward flaring shoulders (Figure 8-3g). Both specimens are missing one of their shoulders. Proveniences: 13.1, 41.1. The fifth specimen exhibits only minimal bifacial flaking, confined primarily to the distal portion of its blade. The stem is short and very wide with a convex base. The bifacially worked portion of the blade is relatively long and narrow, and the specimen may have been used as an awl rather than as a projectile point. Provenience: 35.1.

Unstemmed, Triangular Form (1 specimen). This is a complete, triangular specimen with relatively shallow side notches located at about the midpoints of its lateral edges. The base is slightly concave. It is similar to specimens of the Washita type (Figure 8-3h) and may indicate that an ephemeral Late Caddoan component was present at this site. Provenience: 42.1.

Untyped, Fragmentary (6 specimens). All six of these specimens are missing substantial portions of their stems and cannot be classified on that basis. Blade forms are variable, but three of them have long, well made blades with relatively short, barbed shoulders. Two of these exhibit finely serrated blade edges. Proveniences: 9.1, 29.2, 33.1, 35.3, 38.1, 41.1.

Arrow Point Fragments (4 specimens). These are broken portions of bifacially worked tools whose small size and pointed configuration indicate that they were the distal tips of arrow point blades. None of these specimens were serrated. Proveniences: 31.1, 33.1, 35.1, 43.1.

Finished Bifaces

Apart from the projectile points described above, identifiable finished bifacial tools were almost nonexistent at 41HP137. The single small specimen described as a knife was the only representative of this category.

Knife (1 specimen). This is a relatively small quartzite blade with bifacially worked lateral edges converging to a slightly rounded distal end. Due to this roundness and lateral working, the specimen was interpreted to have been used as a knife. It is 33 mm long, 15 mm in maximum width, and 5 mm thick. The proximal end appears to be the striking platform of the blade, and has not been reworked. This specimen was recovered from level 1 of Unit 29.

Aborted Bifaces

Aborted bifaces are bifacially worked artifacts that appear to have been abandoned at some stage in the biface production process. Early and Late Stage categories are recognized and are dependent on the amount of bifacial reduction accomplished prior to their being discarded. Arrow point preforms are aborted bifaces that are differentiated on the basis of their small size. Most of the aborted bifaces could have been used as cutting or scraping tools. Certain of the Late Stage specimens and arrow point preforms even could have been used as projectile points. However, the generally "unfinished" appearance of these artifacts has led to their classification as production rejects.

Early Stage (9 specimens). These are complete or substantially complete specimens that are relatively thick and irregular in outline, with sinuous edges. All are made of quartzite, although two are relatively coarser grained. Proveniences: 1.1, 9.1, 12.1, 13.2, 17.1, 28.1, 28.2, 29.2, 36.1.

Late Stage (11 specimens). These are better thinned and have straighter edges than the early stage specimens, but their edges do not exhibit fine secondary retouch. Four of these are in a somewhat more advanced stage of reduction and appear to be preforms for the production of Gary type dart points (Figure 8-3b). Materials: quartzite (10), chert (1). Proveniences: 9.1, 12.1, 28.1(2), 34.1, 37.1(2), 42.1, 43.1(2), 43.2.

Arrow Point Preforms (6 specimens). These specimens are made on relatively thin quartzite flakes and are triangular or sub-triangular in outline with relatively straight blade edges. They lack evidence for any modification of their proximal ends that would facilitate hafting. Proveniences: 13.1, 14.1, 32.2, 34.1, 40.2, 41.1.

Biface Fragments (11 specimens). These are artifact fragments with at least one edge showing evidence of bifacial chipping. They are too fragmentary for confident assignment to any of the other biface categories. Materials: quartzite (10), chert (1). Proveniences: 9.1(2), 12.1(2), 28.1, 31.1, 33.1, 35.2, 37.1, 39.1, 41.2.

Unifaces

The unifacial tools are divided into "steeply chipped" and "marginally modified" categories based on the nature of their edge retouch. The two specimens in the former category represent formal scrapers. The marginally modified unifaces are those often referred to as retouched

flakes. Further subdivisions within each category are based on the location of retouch or the shape of the retouched edge.

Steeply Chipped

Unifaces in this category exhibit two or more rows of overlapping (e.g., stepped) flake scars along the working edge. The edge angles along the working margin of these tools are greater than 50 degrees.

Endscraper (1 specimen). This specimen is a thick quartzite flake with steeply chipped retouch along its distal end. It was recovered from level 1 of Unit 37.

Sidescraper (1 specimen). One lateral edge of this relatively thick, tabular piece of quartzite has been steeply retouched to form the working margin. It was recovered from level 2 of Unit 28.

Marginally Modified

These unifacially worked tools are pieces of lithic debris with rows of small continuous retouch flake scars along one or more edges. Unlike the steeply chipped unifaces, retouch was formed by a single, non-stepped row of flake scars and has produced a relatively acute angled working edge.

Graver (2 specimens). Both of these tools possess one or more pointed tips or spurs formed by marginal retouch. One is more complex, with marginal retouch along both lateral edges that formed notched areas as well as the graver tips. Both specimens are made of Ogallala quartzite. Proveniences: 14.1, 28.1.

Notch (3 specimens). Marginal retouch has produced one or more concave working edges on these three quartzite flakes. Proveniences: 35.1, 40.1, 42.1.

Straight to Convex Working Edge (18 specimens). These are flakes, broken flakes, or similar pieces of lithic material exhibiting continuous rows of small retouch flake scars along one or more straight to convex edge. Materials: quartzite (15), chert (3). Proveniences: 9.1(2), 11.1, 13.1(2), 13.2, 14.1, 28.3, 29.3, 34.1, 35.2(2), 37.1, 40.1, 40.2, 40.3, 42.1, 43.1.

Cores

A total of 36 cores and core fragments was recovered during the excavations at 41HP137. Tested nodules and

fragmentary pieces made up the vast majority of these specimens. In all cases, the source of these specimens appears to have been the upland gravel deposits located only a short distance from the site. Little standardization in reduction strategies is exhibited in this assemblage. In the few cases where platform preparation was evident, this preparation was limited to splitting of the lithic nodule. The newly created flat surface was then used as the striking platform for flake removal.

Thirty-four of the specimens in this category were made of quartzite. One is a fine grained silicified wood, while the remaining specimen is a dark brown chert that is duplicated in collections from the local gravels. Proveniences: 12.1 (2), 13.1 (4), 17.1, 28.1 (4), 29.2 (3), 29.2, 30.1, 35.2 (4), 35.3, 37.1 (2), 38.1 (2), 40.1 (3), 41.1, 41.2, 42.1 (3), 43.1, 43.2 (2).

Battered Stone

Hammerstone (1 specimen). This specimen is a large and rather flat nodule of coarse grained quartzite. One end of this cobble exhibits a considerable amount of battering and a number of cortex flakes have been removed from this edge. It was recovered from level 1 of Unit 34.

Ceramics

by Timothy K. Perttula

Only twelve ceramic body sherds were recovered from 41HP137. Additionally, three pieces of burned clay (see Table B-15) were found in the block excavations (see Figure 8-10). The distribution of ceramic sherds across the site approximates that noted for the lithic debris and burned rock, although the area covered (ca. 200 m² [656.2 ft²]) is about half the size of the site as a whole.

Three different types of ceramic wares were identified at the site: grog, grit, and small grog. A single sherd of small grog tempered ware with portions of an appliqué fillet constitutes the decorated sherds from the site (see Appendix B for further information). Another small grog tempered ware body sherd has an interior burnish.

Grog tempered sherds range in thickness from 5.5-8.8 mm, averaging 6.4 mm. Only two of these sherds have additional aplastics added as temper besides the grog, and in both cases finely crushed bone was added to the paste. None of the sherds were large enough to categorize by vessel form, but based on the range and mean thickness both bowls and jars are probably included in the sample. The single grit tempered sherd is a thin (5.2 mm) body fragment, probably from a bowl.

The small grog tempered sherds are uniformly thin (5.0-6.9 mm) with an average thickness of 5.6 mm. Grit tempering had been added to the sherd from Unit 28, and another sherd from Unit 24 had abundant carbonaceous inclusions in the paste. A small percentage (0.33%) of the Middle Caddoan ceramics from the Hurricane Hill site (41HP106) had this type of paste, and they were uniformly associated with thin fine wares rather than utility wares (Perttula 1988:315-318). Punctated and brushed designs were also noted to be characteristic at 41HP106. Only bowls were identified in the small grog tempered assemblage from 41HP137.

It is suggested that the ceramics found are more likely to be associated with the arrow points than the dart points, because of vertical associations, and thus, relate to an occupation postdating the Early Ceramic period components dating between 200 B.C.-A.D. 800. There is not much evidence available in the ceramic assemblage itself, however, to more conclusively refine questions of contextual association. This is due in part to the small assemblage size, limited information on vessel forms and decorative types, and the lack of comparative material from other ceramic bearing Early Ceramic Period sites at Cooper Lake. The general thicknesses of the ceramics, the presence of an appliqué design, and the recovery of a Washita-like arrow point type (see Figure 8-3h) from Unit 42.1, seem to indicate that the ceramic bearing occupation at 41HP137 took place after ca. A.D. 1200. The Middle Caddoan component at the Hurricane Hill site dated ca. A.D. 1170-1400 (Perttula 1988:228-229).

SUBSISTENCE RESOURCES

Evidence of prehistoric subsistence activities was relatively rare at site 41HP137. There was a complete lack of faunal remains from our excavations. This was attributed to the acidic nature of the soil, rather than being seen as evidence for a lack of faunal exploitation during the occupation of this site. Somewhat surprisingly, carbonized nutshell fragments were common at the site. Many of the excavation units contained small amounts of this material, which apparently preserved better than either bone or shell if these were present at all. Carbonized plant remains have been quantified only for the flotation samples collected from Features 1 and 2. These materials constitute the only subsistence evidence identified for 41HP137.

Macrobotanical Remains by Cathy J. Crane

Three flotation samples from two separate features were analyzed for macrobotanical remains (Table 8-2).

Only one sample from Feature 1 and two from Feature 2 were analyzed. Consequently, not much can be ascertained about the relative importance of the plant taxa in the site's economy. Hickory and acorn nutshell as well as squash rinds were present in both features. Whereas, tuber was present only in Feature 2.

The presence of squash rind in Feature 2, which has a radiocarbon date of 130 ± 50 B.C. (SMU 1917, corrected), is significant since this is the only Pre-Caddoan site in Texas known to have cultigens. The absence of cultigen remains from Texas Pre-Caddoan sites, however, is probably due to the fact that plant remains are poorly preserved at many open sites, and the fact that flotation has not been used at many Pre-Caddoan sites. Flotation did recover squash remains from Zone 1 of the Wylie pit of 41FT201 in Richland Creek Reservoir (Martin and Bruseeth 1987c).

CULTURAL FEATURES

The cultural features that were documented at site 41HP137 included two relatively shallow subsurface pits and one possible posthole. Based on the presence of burned clay and a large amount of ashy fill, one of these pit features (Feature 2) may represent a hearth. All features were located within the excavation block (Figure 8-4). They are described individually and their contents are discussed in this section of the report.

Pits

Feature 1 a shallow pit, was located in the northwest corner of the excavation block. The horizontal plan of this feature was not completely documented. During the excavation of Unit 28, the excavators failed to recognize and define the northwest part of this pit. The feature also extended for an unknown distance into the west wall of the excavation block. The documented portion of this feature was somewhat irregular in outline, with a shallow basin shaped profile (Figure 8-5). It is possible that two intersecting pits may be represented, but this could not be determined since the loam fill was rather uniform throughout this feature. The pit was considerably deeper in its eastern half where it reached a maximum of 28 cm (11 in) below the surface.

All materials recovered from deeper than 10 cm (3.9 in) below the surface in Units 37 and 41 were within the recognized limits of Feature 1 and were included in the tabulation of feature contents (Table 8-3). Because of the failure to recognize this feature during the excavation of Unit 28, none of the artifacts from that unit were included in these counts. The tabulated materials were recovered from a total of 105 liters of feature fill. Of this total, 10

TABLE 8-2

Distribution Of Plant Remains At 41HP137 (Weight In Grams)

Feature	Wood Charcoal	Hickory Nutshell	Acorn Shell	Squash Rind	Tuber	Rhizome	Unknown	Total Weight	Volume Floated (liters)
1 ^a	0.63	2.25	0.01	0.02	—	—	0.02	2.93	10
2 ^b	1.94	7.29	0.04	0.04	0.01	—	0.05	9.37	20
2 ^c	0.79	15.84	0.05	0.13	0.03	0.01	0.08	16.93	10
Total	3.36	25.38	0.10	0.019	0.004	0.01	0.15	29.23	40

^a 10-28 cm level.^b 10-20 cm level.^c 20-30 cm level.

liters were collected as a flotation sample, 20 liters were fine screened through 1.6 mm (.06 in) mesh, and the remaining 75 liters were sifted through 6.4 mm (.25 in) screens. Diagnostic artifacts recovered from this feature included a Gary type dart point and a Scallorn-like arrow point. The Gary point was from the 10-20 cm (3.9-7.9 in) level in Unit 37. The arrow point was from 10-28 cm (3.9-11 in) below the surface in Unit 41. A sample of carbonized nutshell from the 10-28 cm (3.9-7.9 in) level of Unit 41 yielded a radiocarbon determination of 1460 ± 60 B.P. or A.D. 595 ± 50 (SMU 1966, corrected).

As was true of the site deposit in general, lithic debitage and fire-cracked rocks were the most common artifacts from the feature fill. Also included were carbonized plant remains, one biface fragment, and one core fragment. A comparison with the contents of Feature 2 suggests that Feature 1 contained a relatively higher density of both lithic debitage and fire-cracked rocks, but relatively less carbonized plant remains (Table 8-3). The relationship of these contents to feature function is questionable. It will also be shown in the following section of this chapter that the A horizon deposit contained a higher density of lithic debitage and fire-cracked rock in the area of Feature 1 than was the case for the area where Feature 2 was located. Rather than having been associated with feature related activities, these artifact contents may represent debris from the surrounding site deposit that filled the pit subsequent to its use.

Feature 2 was detected initially as a somewhat amorphous stain during excavation of the 10-20 cm (3.9-

7.9 in) level of Unit 39. With the idea that this might represent a cultural feature, both fine screen (10 l) and flotation (20 l) samples were collected from the 10-20 cm (3.9-7.9 in) level within this stained area. The outline of the feature became well defined at a depth of 20 cm (7.9 in) below the surface. At that depth the darker colored feature fill contrasted markedly with the surrounding clay subsoil. The feature was cross sectioned along its east-west axis, and its south half was excavated initially. A 10 liter sample of this fill was saved for flotation and the remainder was sifted through a 6.4 mm (.25 in) screen. After a profile drawing was made, the north half of the feature was excavated and screened through 6.4 mm (.25 in) mesh.

Feature 2 was roughly circular in plan view, in east-west (Figure 8-6). It was basin shaped in profile and extended to a maximum depth of 30 cm (11.8 in) below the surface. Most of the fill was dark grayish brown (10YR4/2) in color, but an area of light gray (10YR7/2) ash was present in the south half of the pit. The pit fill also contained a number of relatively small pieces of oxidized clay and some carbonized plant remains. Primarily on the basis of this ash, burned clay, and carbonized materials, Feature 2 is thought to represent a subsurface hearth.

Although limited amounts of lithic debitage and burned rock were recovered from the fill, the most common materials were carbonized plant remains (Table 8-3). These consisted primarily of nutshell fragments and lesser amounts of wood charcoal. A sample of this material yielded a radiocarbon date of 2090 ± 30 B.P. or 130 ± 50 B.C. (SMU 1917, corrected).

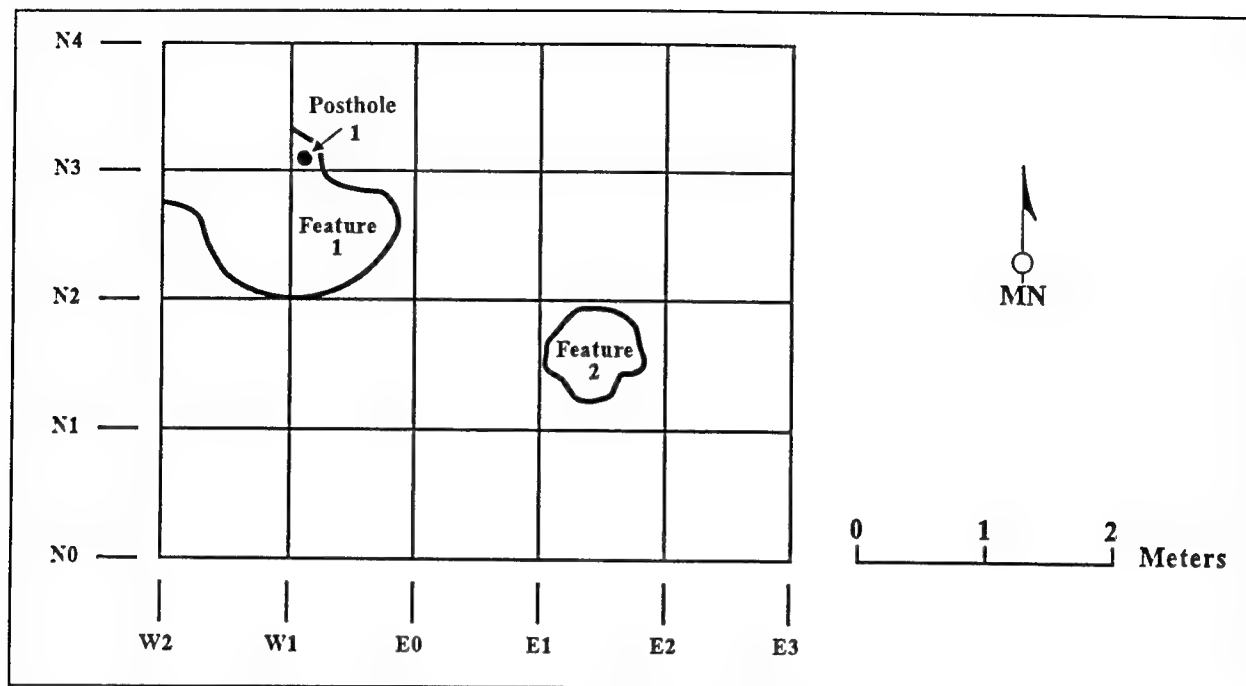


Figure 8-4. Location of Feature 1, Feature 2, and Posthole 1 at site 41HP137.

Posthole

One possible posthole (#1) was located within the limits of Feature 1. This was detectable as a small circular stain at 13 cm (5.1 in) below the surface in the southwest corner of Unit 14. It measured ca. 12 cm (4.7 in) in diameter. Cross-sectioning along its north-south axis exposed a profile that extended an additional 7 cm (2.7 in) in depth, and displayed a rounded bottom for this feature (Figure 8-7). The maximum depth of this posthole was only 20 cm (7.9 in) below the modern ground surface, but it is not possible to determine how much of the A horizon sediments may have been eroded from this area.

INTRASITE PATTERNING

Vertical Distributions

The uppermost excavation level (0-10 cm [0-3.9 in]) contained the greatest numbers of artifacts for all 1 x 1 m (3.28 x 3.28 ft) units (see Table 8-1). Of course, the artifact bearing loam zone was only 10-15 cm (3.9-5.9 in) deep in some of these units. This was the case for units in the south row and southwest quadrant of the excavation block (e.g., Units 9, 30, 31, 33, 34, 36, 38, and 42). In units where the site deposit was somewhat deeper (e.g., Units 13, 14, 29, 32, 35, 40, and 43), a more even vertical distribution of artifacts can be seen. The overall shallowness and differential deflation of the site deposit

are reasons why the vertical distribution of artifacts must be interpreted with caution. Even if vertical separation of temporal components had existed at one time, it is likely that post-deposition processes have caused some displacement of the artifacts.

The relatively small numbers of artifacts from the 50 x 50 cm (19.7 x 19.7 in) units are not relevant to the present discussion since these units were excavated without sufficient vertical control. When the materials from all 1 x 1 m (3.28 x 3.28 ft) units are combined (Table 8-4), it is apparent that the vertical distributions for most artifact classes are quite similar to one another. The percentages by level for lithic debitage and fire-cracked rock are almost identical, and these can be used as a standard of comparison for the other classes of artifacts. The restriction of ceramics to the 0-10 cm (0-3.9 in) level is the most obvious difference, although the small sample size (9 specimens) may be less than adequate for significant comparison. The only other notable difference concerns the unifaces, for which 33% were recovered from below a depth of 10 cm (3.9 in). The percentages of specimens from below 10 cm (3.9 in) ranged between 19% and 26% for the other artifact classes.

Of the complete sample of temporally diagnostic artifacts (i.e., projectile points and ceramics) only one dart point, one dart point fragment, and three ceramic sherds were from the 50 x 50 cm (19.7 x 19.7 in) units. The distribution of all other temporally diagnostic artifacts by excavation level (Table 8-5) shows that a higher

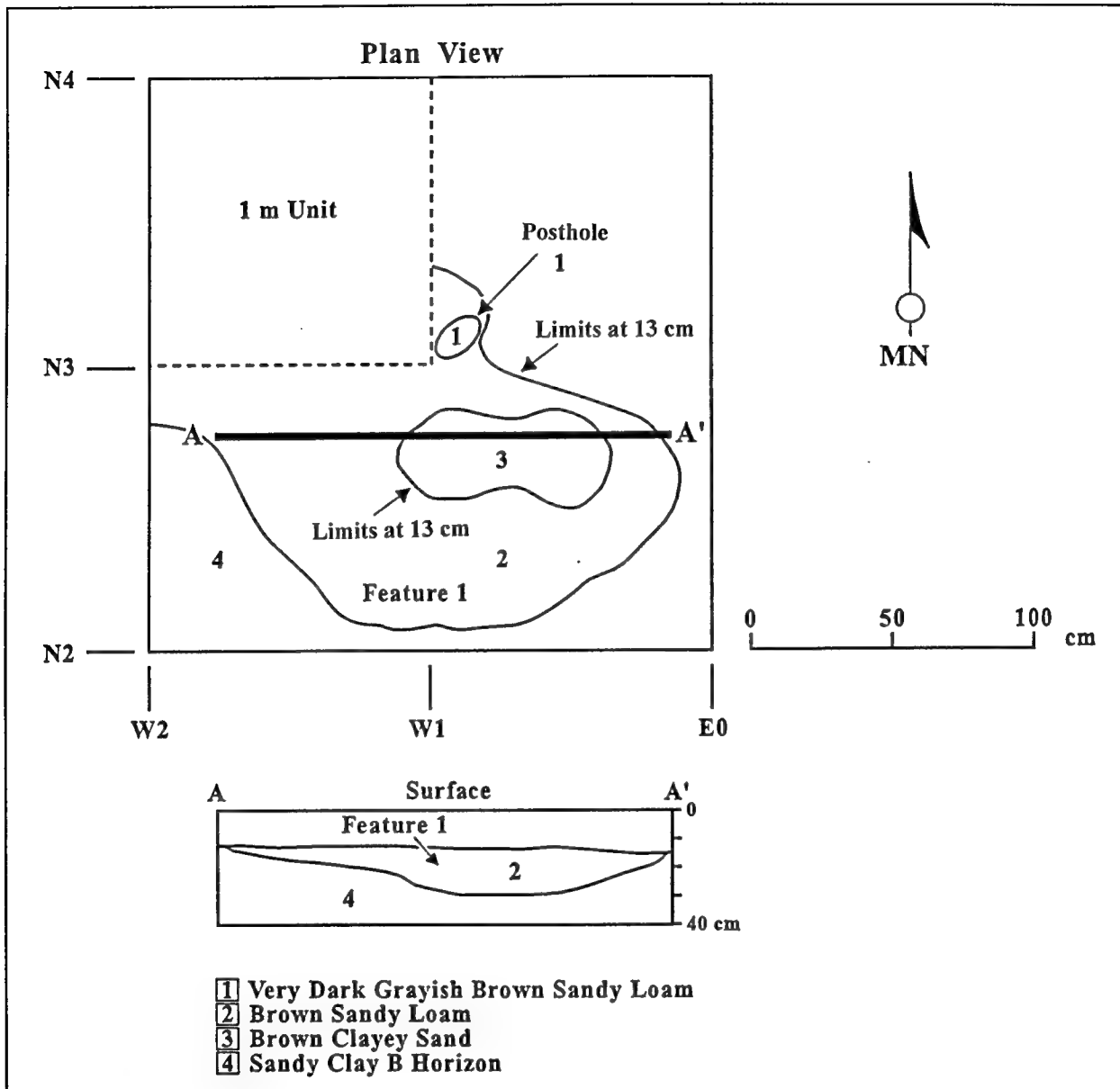


Figure 8-5. Plan view of Units 28, 14, 37, and 41 at site 41HP137 showing Feature 1, Posthole 1, and profiles of Feature 1.

percentage of the dart points (33%) was recovered from below 10 cm (3.9 in) than was the case for either the arrow points (17%) or the ceramics (0%). Although this difference is not great, it is possible to suggest that the recovered ceramics more likely were associated with the arrow points than with the dart points. On the other hand, the dart points and the unifaces are most similar in their vertical distributions. For this reason it might be suggested that most of these unifaces were associated with the site component that produced the dart points.

Horizontal Distributions

Artifacts were found to be present over an area that measured about 20 m (65.6 ft) north-south by 20 m (65.6 ft) east-west. However, artifact densities were very low over much of this area. This patterning was illustrated best by the density distributions of lithic debitage and fire-cracked rocks, the artifact categories that contained the largest numbers of specimens. When the artifact counts were adjusted to account for the relative sizes of the

TABLE 8-3

Feature Contents from Site 41HP137

	Projectile Points	Biface Fragments	Lithic Debitage		Core Fragments	Fire-cracked Rock		Carbonized ¹ Plant Remains	Volume (liters)
			>0.25"	<0.25"		#	g		
<i>Feature 1</i>									
0.25 in screen	2	1	57	—	1	23	129.0	8.7	75
Fine screen	—	—	9	16	—	—	—	4.4	20
Flotation	—	—	6	12	—	—	—	3.8	10
<i>Feature 2</i>									
0.25 in screen	—	—	6	—	—	2	24.0	13.7	20
Fine screen	—	—	5	4	—	—	—	1.8	10
Flotation (10-20 cm)	—	—	7	3	—	3	6.5	7.2	20
Flotation (20-30cm)	—	—	5	0	—	1	2.4	22.8	10
Total	2	1	95	35	1	29	161.9	62.4	165

¹ Weight in grams.

excavation units, the densities of lithic debitage (Figure 8-8) and fire-cracked rock (Figure 8-9) produced somewhat similar patterns. In both cases the densities were highest in the northern portion of the excavation block, while substantial numbers of these materials (>50 per m²) appear to have been restricted to an area that measured ca. 10 m (32.8 ft) north-south by 5 m (16.4 ft) east-west.

A more detailed picture of horizontal patterning was hindered somewhat by the lack of excavation immediately to the north of the block. No units were placed there because of apparent erosion and deflation of the upper loam deposit in that part of the site. It appears that the central area of highest artifact density extended for some distance in that direction, but its exact horizontal limits have not been determined. In any case, this high density cluster of artifacts was confined to a relatively small area. The spatial association of prehistoric features with this artifact concentration suggests that it represents an area of intensive cultural activity rather than simply a disposal area for artifactual debris.

Patterning was not easily definable for the various classes of lithic tools and for the ceramics. Their spatial distributions were characteristically sporadic, in part because of their low frequencies of occurrence. Taken together, tool densities corresponded rather closely to the

density distribution of the more numerous artifact categories. As was the case for lithic debitage and fire-cracked rock, the tools also were concentrated within the north half of the excavation block. Again, it appears that this tool concentration extended into the unexcavated area to the north of the block. Any horizontal patterning that can be recognized within the excavation block actually would have been only part of a larger scale pattern at the site.

Almost 80% of all temporally diagnostic artifacts (i.e., projectile points and ceramics) in the excavation block were recovered from its north half (Figure 8-10). Because of the possibility that two separate components might be represented, the relative spatial distributions of arrow points and dart points were of interest. Although these distributions showed considerable overlap, some differences can be identified. There was a tendency for arrow points to cluster in the northeast corner of the block. Almost half of them (8 of 18) were in Units 29, 35, 40, and 43, while only 24% (6 of 25) of the dart points were from these units. In comparison only 17% of the arrow points came from a comparable area (2 x 2 m [6.6 x 6.6 ft]) in the northwest corner of the block, along with 36% of the dart points (Figure 8-10). Overall, these differences were relatively slight and do not constitute

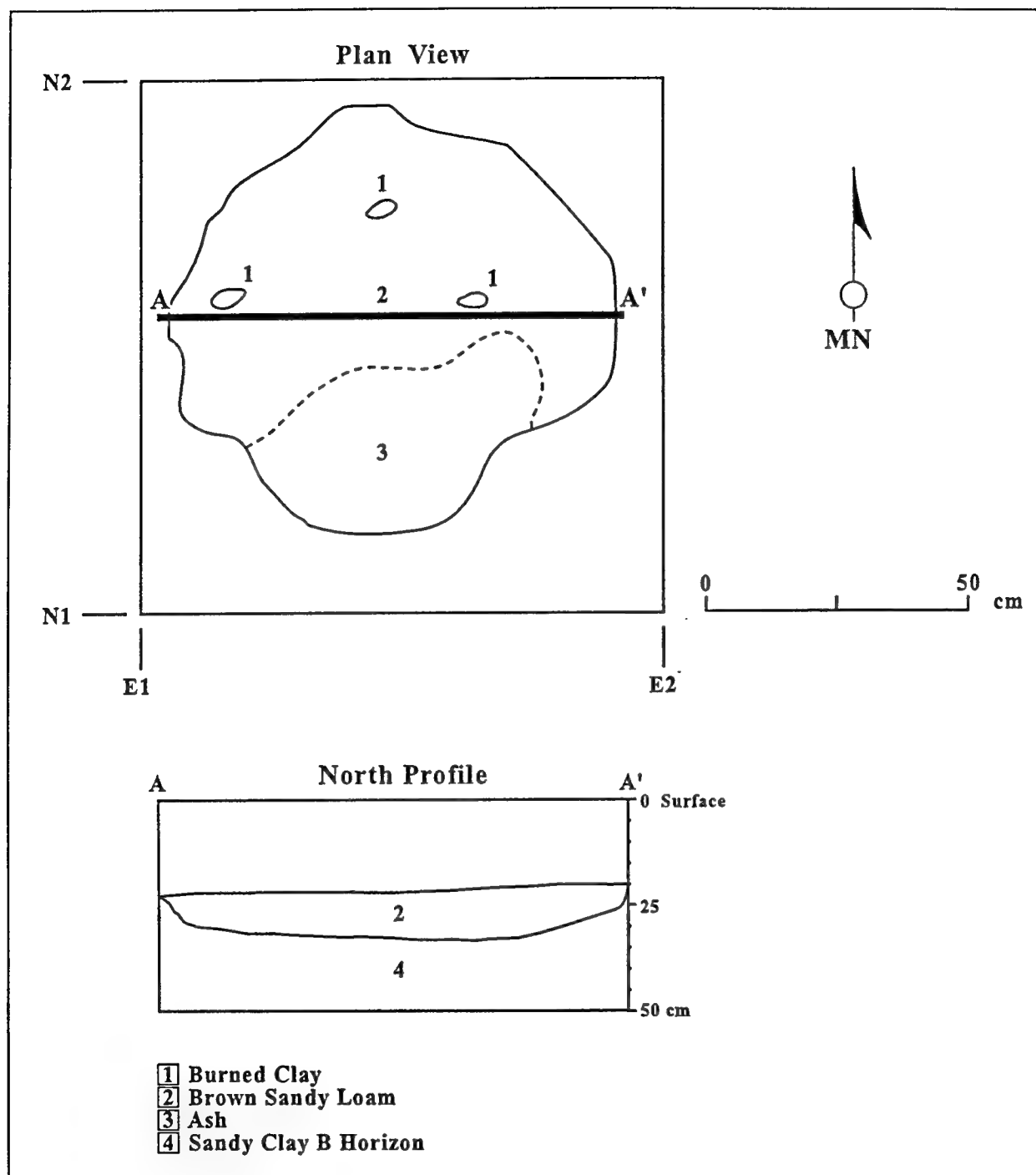


Figure 8-6. Profile and plan view of Unit 39 at site 41HP137 showing Feature 2.

conclusive evidence of a horizontal separation of components. In fact, even though the vertical distribution of ceramics seemed to correlate more closely with that of the arrow points, this correlation did not apply to the horizontal distributions of these two artifact classes.

The identification of horizontal patterning among the other artifact classes was also attempted. Examples for the distributions of the aborted bifaces and the unifacial tools are shown in Figure 8-11. In terms of vertical distribution, the unifaces had followed most closely that of the dart

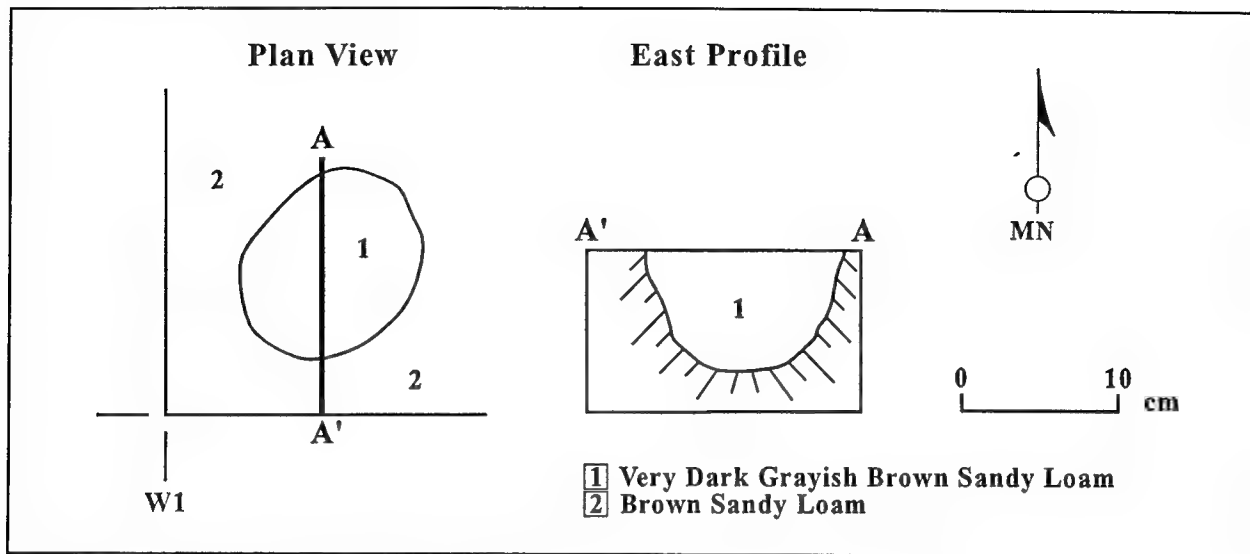


Figure 8-7. Plan view of Unit 14 at site 41HP137 showing Posthole 1 and profile of Posthole 1.

points. Because it was thought possible that unifaces might relate to an earlier component, their horizontal distribution was of special interest. In this case, however, the distribution of unifaces was not consistent with that of the dart points. In fact, a rather notable concentration of unifaces (9 of 24) was confined to the northeast corner of the block, quite unlike the dart point distribution. If more than one component was represented at 41HP137, their remains are not clearly separable on the basis of either their horizontal or vertical distributions.

INTERPRETIVE SUMMARY

The excavation of 41HP137 was recommended because this site was thought to be a single component occupation that dated to the Early Ceramic period (ca. 200 B.C.-A.D. 800). The recognition and understanding of Early Ceramic occupations at Cooper Lake are still inadequately developed at this stage of our research, even though they had been identified from the earliest excavations (Johnson 1962:267-268). Several radiocarbon dates from Cooper Lake sites have fallen within this time period (Doehner and Larson 1978:157). However, all of these previously excavated sites were multicomponent, and it was not possible to determine which subsets of their artifact assemblages and cultural features were associated with the Early Ceramic period occupations. It was thought initially that 41HP137 offered a chance to recover an unmixed assemblage with associated radiocarbon dates.

Our excavations showed that the site was rather limited in size (ca. 20 m [65.6 ft] in diameter), with the densest concentration of artifacts confined to a much smaller area (10 x 5 m [32.8 x 16.4 ft]). Since cultural

features were associated spatially with this artifact concentration, it most likely was an area of intensive cultural activity rather than simply a trash disposal area. The limited size of the high density artifact concentration initially had been interpreted as evidence of a single component occupation. It was thought unlikely that different groups of occupants would have chosen precisely the same location to concentrate their activities.

Based on the results of our excavations, it now appears that two separate major components were represented at 41HP137, although both of these fall within the span of time referred to as the Early Ceramic period (200 B.C.-A.D. 800). This interpretation is based primarily on radiocarbon dates from the site's two subsurface features. The A.D. 595 \pm 50 (SMU 1966, corrected) determination from Feature 1 dates the later component. The diagnostic artifacts recovered from the fill of this shallow, basin shaped pit were representative of those in the site assemblage overall. Specifically, a Gary dart point and a Scallorn-like arrow point occurred in apparent association. Our initial impression was that this combination of diagnostics might characterize a single component assemblage dating to the later end of the Early Ceramic period. While the A.D. 595 \pm 50 date is slightly earlier than that generally given for the introduction of arrow points (ca. A.D. 700), the dated nutshell and the Scallorn-like arrow point were in good association in the deepest part of the feature.

The earlier component is indicated by the 130 \pm 50 B.C. (SMU 1917, corrected) date from Feature 2. This is certainly too early to have been associated with the arrow points. The site's dart point assemblage is probably diagnostic of this time period, but the use of Gary points

TABLE 8-4

Summary Of Vertical Distributions Of Major Artifact Categories At 41HP137¹

Excavation Level	Projectile Points		Bifaces		Unifaces		Lithic Debitage		Cores		Ceramics		Burned Rock		# Of M ² Excavated
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	
1	49	76	19	81	16	67	1,957	78	27	74	9	100	897	78	20
2	14	22	7	19	5	21	483	19	8	23	—	—	199	17	15
3	1	2	—	—	3	12	71	3	1	3	—	—	41	4	7
4	—	—	—	—	—	—	6	<1	—	—	—	—	5	<1	2
Total	64	—	26	—	24	—	2,517	—	36	—	9	—	1,142	—	44

¹ 1 x 1 m Units Only^a 0-10 cm level.^b 10-20 cm level.^c 20-30 cm level.^d 30-40 cm level.

most likely continued during the later component as well. Unfortunately, it was not possible to separate adequately the remains of these components on the basis of either their horizontal or vertical distributions. There is nothing unusual about the ceramic sherds from this site that would distinguish them from the ceramics in Caddoan period assemblages. They do not resemble the thick grog tempered and bone tempered wares (e.g., Williams Plain) that have been hypothesized as diagnostic of the Early Ceramic period (Story 1981:146; Perttula 1987:3-14). It seems likely that the ceramics, along with at least the triangular (e.g., Washita-like) arrow point, represents a minor Caddoan Period occupation dating later than A.D. 1200.

Apart from the substantial numbers of projectile points and retouched flakes (i.e., marginally modified unifaces), finished tools were relatively rare. Most of the lithic artifacts seem to represent waste materials related to lithic tool production (i.e., lithic debitage, aborted bifaces, cores, and core fragments). An emphasis on the early stages of raw material reduction is indicated by the fact that the debitage from 41HP137 exhibited relatively greater amounts of cortex than did the assemblages from the three other excavated sites (Appendix A). Finished bifacial tools other than projectile points were almost non-existent, and even the marginally modified unifaces were present in low relative frequency when compared with the tool assemblages from the other excavated sites.

Because of a total lack of bone and shell, nothing can be inferred about the exploitation of faunal resources at 41HP137. The only subsistence information consisted of

carbonized macrobotanical remains. Remains of hickory nuts, acorn, *Psoralea*, tuber, and squash were identified.

The squash remains are the most interesting and were most abundant in Feature 2. Squash apparently was developed independently, or introduced into, eastern North America at least as early as 2300 B.C. (Asch and Asch 1985; Ford 1985). Kay, King, and Robinson (1980) suggested that squash may have diffused from Taumalipas, where it is thought to have been domesticated prior to 5000 B.C. (MacNeish 1958; 1964).

No evidence of early tropical cultigens has as yet been reported in Texas prior to the ninth century A.D. (Story 1985:55). The squash rinds recovered from Feature 2 represent the earliest remains of a domesticated plant reported from a site in northeast Texas. Although limited in quantity, the macrobotanical assemblage from 41HP137 provides an initial indication of pre-Caddoan subsistence at Cooper Lake.

Site 41HP137 was one of a series of small, relatively low density sites discovered during the 1987 survey. The small size of this site, the lack of midden development, and the relatively ephemeral nature of the documented features suggest a much less intensive occupation than those at the three other excavated sites (e.g., 41DT80, 41DT124, and 41HP78).

The occupation of 41HP137 may have been related to apparently contemporaneous occupations at the nearby Hurricane Hill site (41HP106). At that site, rather extensive midden deposits have been attributed to the Early Ceramic period component (Tim Perttula, personal communication 1987).

TABLE 8-5

Vertical Distribution Of Diagnostic Artifacts At 41HP137¹

Excavation Level	Dart Points		Dart Point Fragments		Arrow Points		Arrow Point Fragments		Ceramics	
	#	%	#	%	#	%	#	%	#	%
1	16	67	14	78	15	83	4	100	9	100
2	8	33	4	22	2	11	—	—	—	—
3	—	—	—	—	1	6	—	—	—	—
Total	24	—	18	—	18	—	4	—	9	—

¹ 1 x 1 m Units Only^a 0-10 cm level.^b 10-20 cm level.^c 20-30 cm level.

A series of small sites were located along minor tributary drainages to the south of Hurricane Hill that appear to be similar to 41HP137 (e.g., 41HP136 and 41HP138). These small sites may represent ancillary

camp sites that were associated with the more intensively occupied Early Ceramic period habitation site at 41HP106.

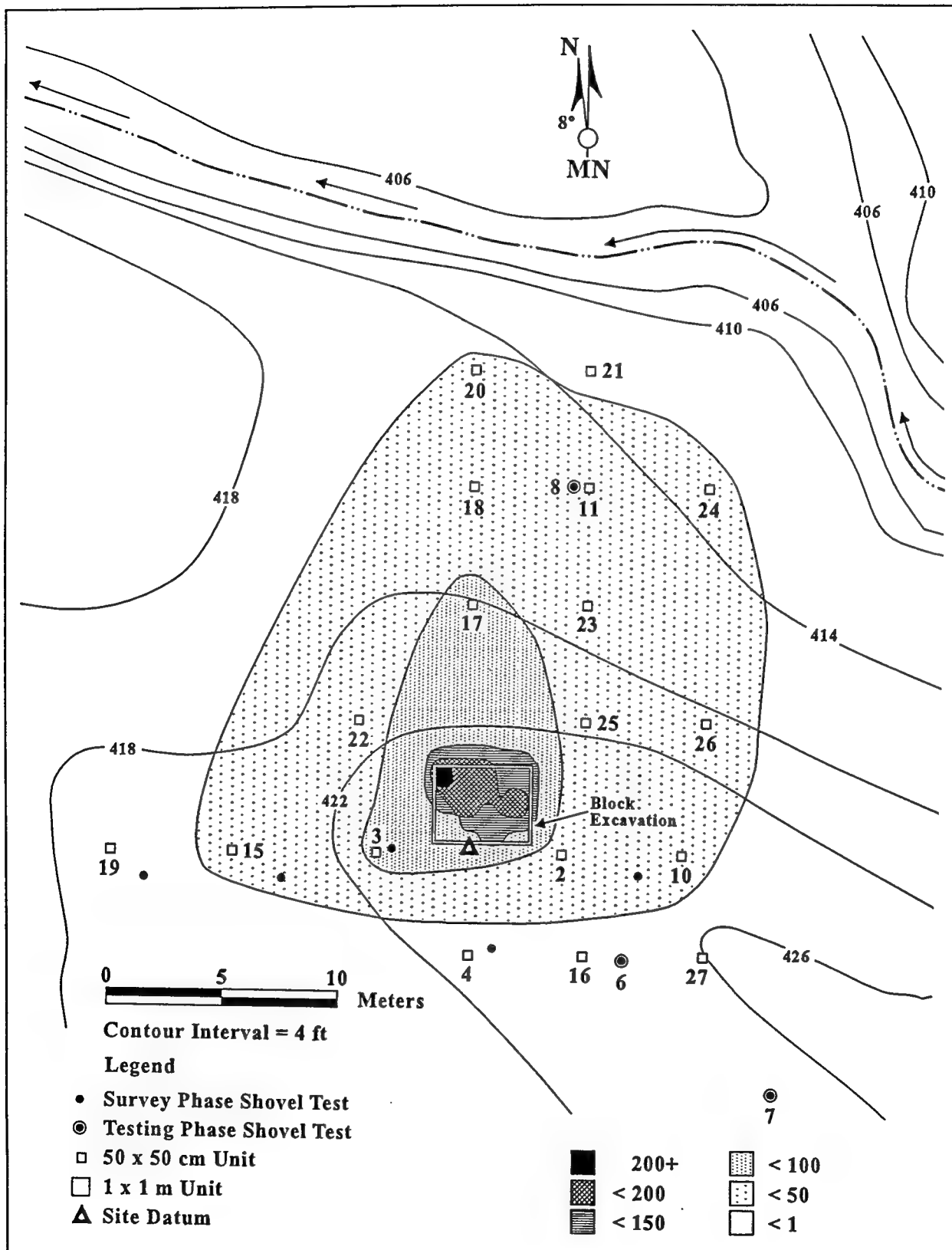


Figure 8-8. Adjusted frequencies of lithic artifacts per square meter at site 41HP137.

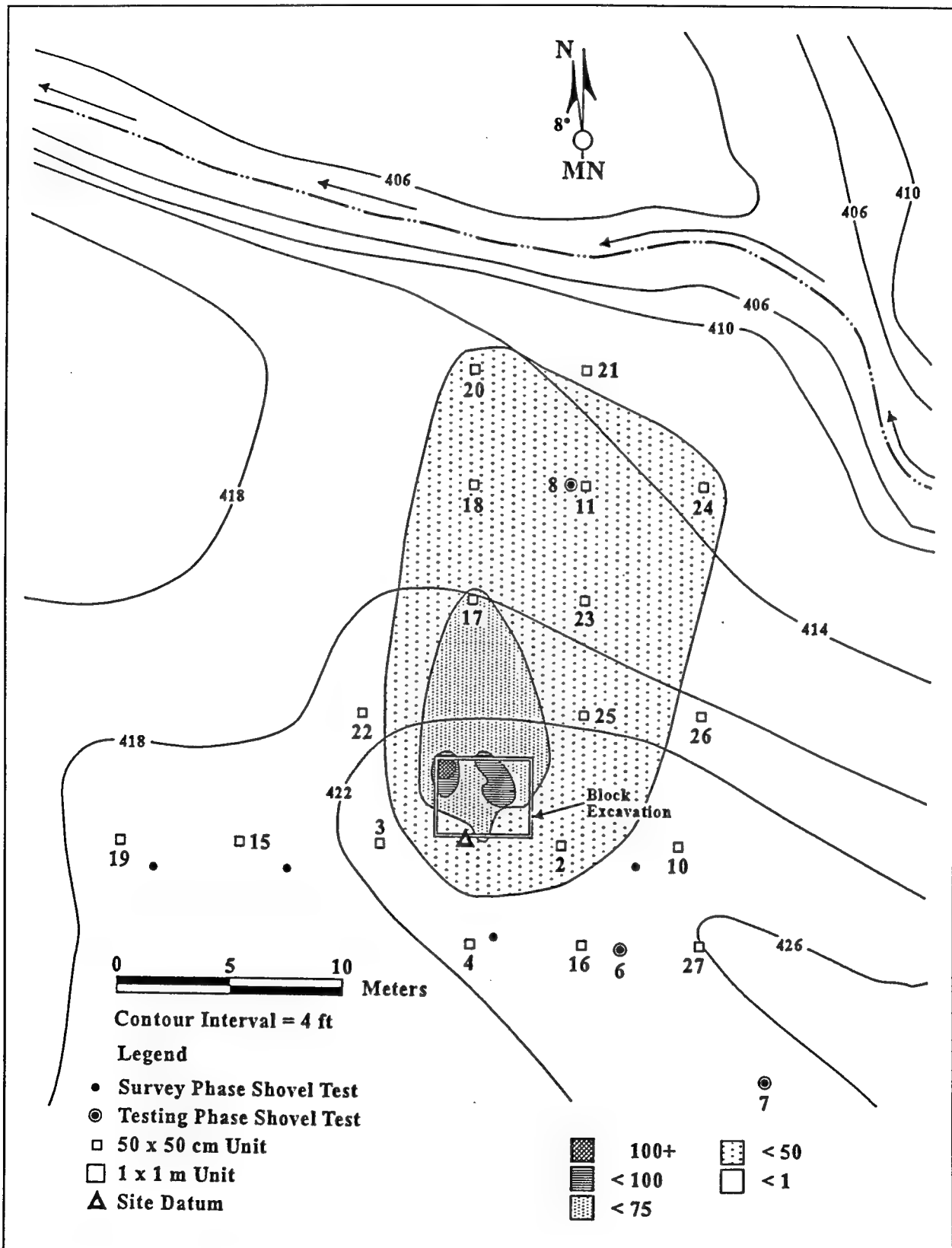


Figure 8-9. Adjusted frequencies of fire-cracked rock per square meter at site 41HP137.

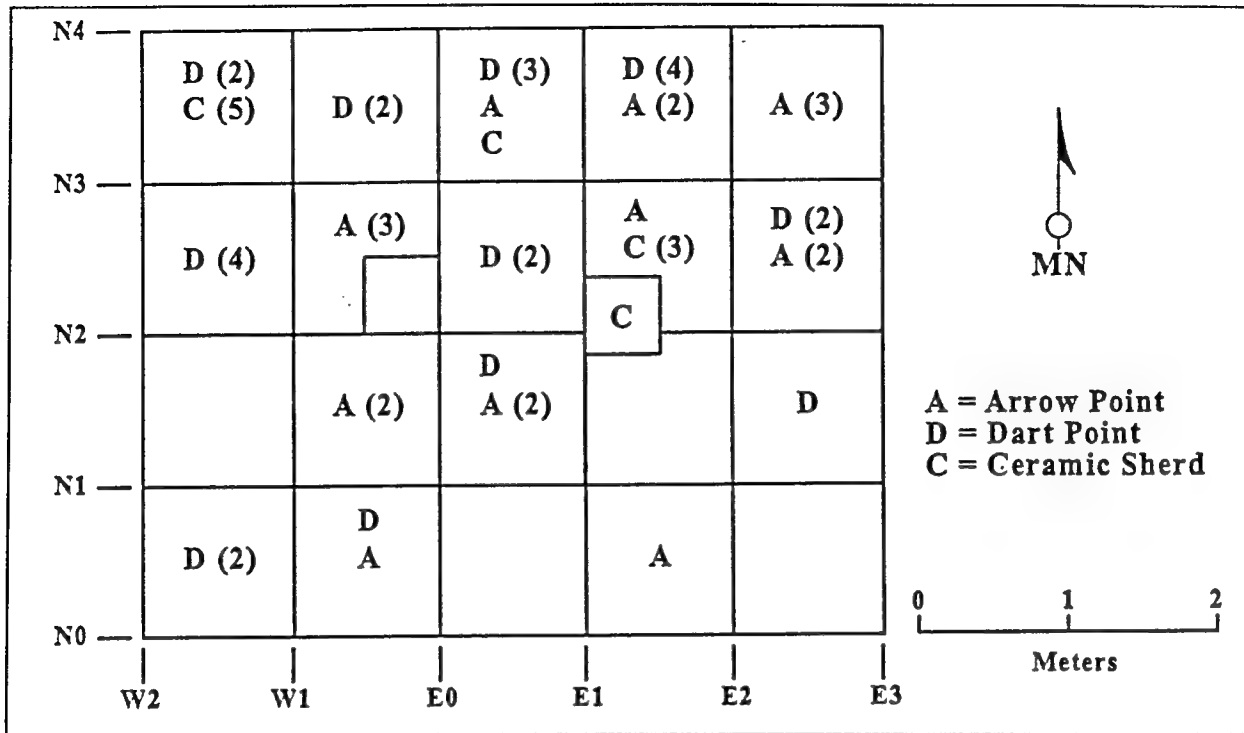


Figure 8-10. Distribution of projectile points and ceramics within the block excavation at site 41HP137.

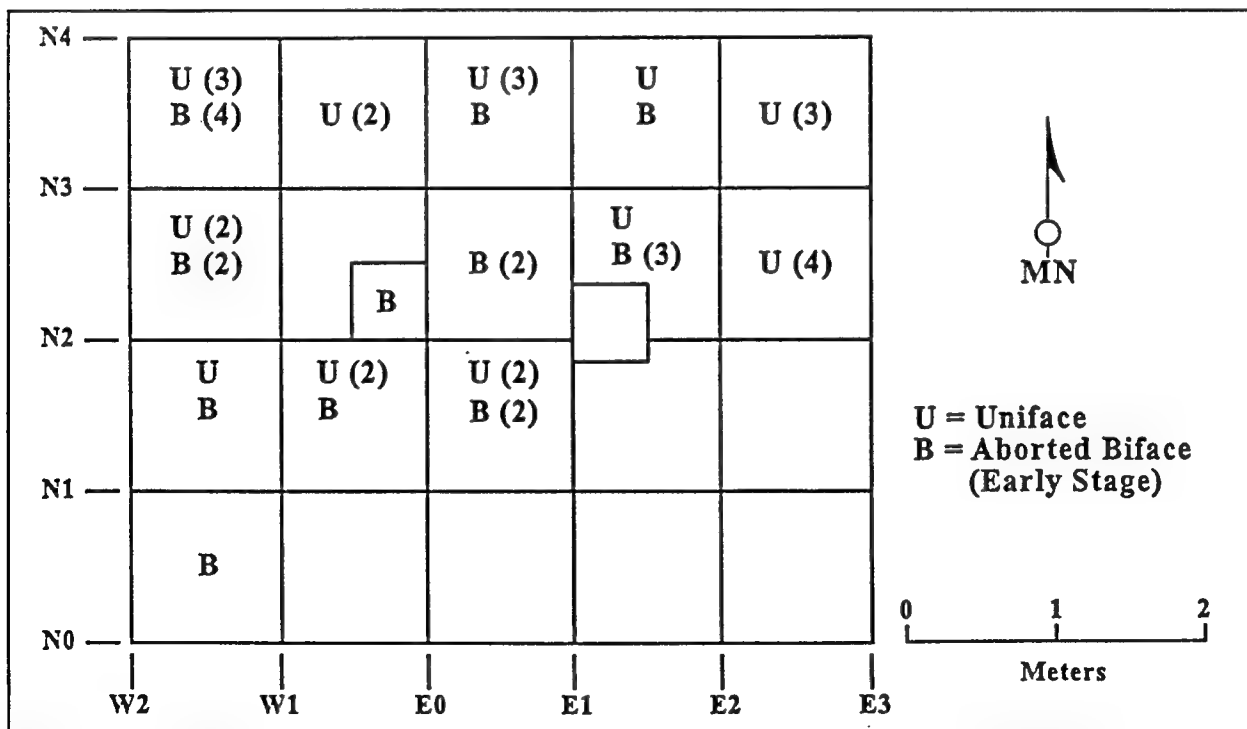


Figure 8-11. Distribution of unifaces and aborted bifaces within the block excavation at site 41HP137.

ARCHAEOLOGICAL INVESTIGATIONS AT 41HP78: THE LAWSON SITE

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with contributions by Bonnie C. Yates,
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9

The Lawson site (41HP78) was first recorded by SMU in 1970 (Hyatt and Skinner 1971), and has been tested on three occasions since its discovery. In 1972, SMU excavated twenty-two 1 x 1 m (3.28 x 3.28 ft) units (Hyatt et al. 1974); then in 1986, North Texas State University excavated a series of 30 x 30 cm (11.8 x 11.8 in) units in an attempt to reevaluate the site (Perttula 1987). Finally, in 1987, SMU conducted additional excavation of 30 x 30 cm (11.8 x 11.8 in) and 1 x 1 m (3.28 x 3.28 ft) units to complete the reassessment of the deposit. The results of these test excavations indicated that the Lawson site contained significant archaeological deposits, including Archaic and Late Prehistoric period deposits. Therefore, the site was excavated to a fuller extent during the summer of 1987 as part of the intensive data recovery at sites in the dam and borrow study area.

The following discussion is divided into three major sections: the site environment, the results of archaeological survey and testing, and the results of the mitigation phase excavations. The final section includes only brief discussions of the faunal, macrobotanical, and osteological analyses.

SITE ENVIRONMENT

The Lawson site was recorded during the 1970 survey as site X41HP7, and was later assigned the state trinomial 41HP78 (Hyatt and Skinner 1971). It was found along the top of a large knoll (i.e., an erosional remnant of a

Pleistocene terrace) in the floodplain of the South Sulphur River. The knoll is adjacent to the south bank of the river, and is being eroded by a meander of the river along its western edge. Harpers Crossing lies about 2.2 km (1.37 mi) southwest of this knoll. The landform rises about 3.65 m (12 ft) above the surrounding floodplain, which has an elevation of 122 m (400 ft) amsl, so the top of the knoll is located at ca. 125.6 m (412 ft) amsl. A levee intersects the knoll, abutting it along both the southwest and the northeast slopes. A deep ditch (apparently the source of levee fill) is parallel to the levee along its south side. Together, the levee and ditch divide the site into a northwest portion containing a light scatter of cultural material, and a southeast portion containing the principal archaeological deposits. A farm road crosses the western portion of the knoll in roughly an S-shaped pattern, passing over the top of the levee and down the other side into the woods (Figure 9-1).

Lawson is a very large site in comparison with other sites in the Cooper Lake study area. When first discovered in 1970, artifacts were found across the knoll for a distance of ca. 125 m (Hyatt and Skinner 1971). As a result of the 1986 and 1987 testing and mitigation efforts, the site limits have been determined to be ca. 140 m (459.3 ft) north-south by 250 m (820.2 ft) east-west. The western edge of the site extends all the way to the riverbank, where it is cut into by a meander of the river, exposing cultural materials along the bank. The eastern boundary is formed by a steep slope dropping down into

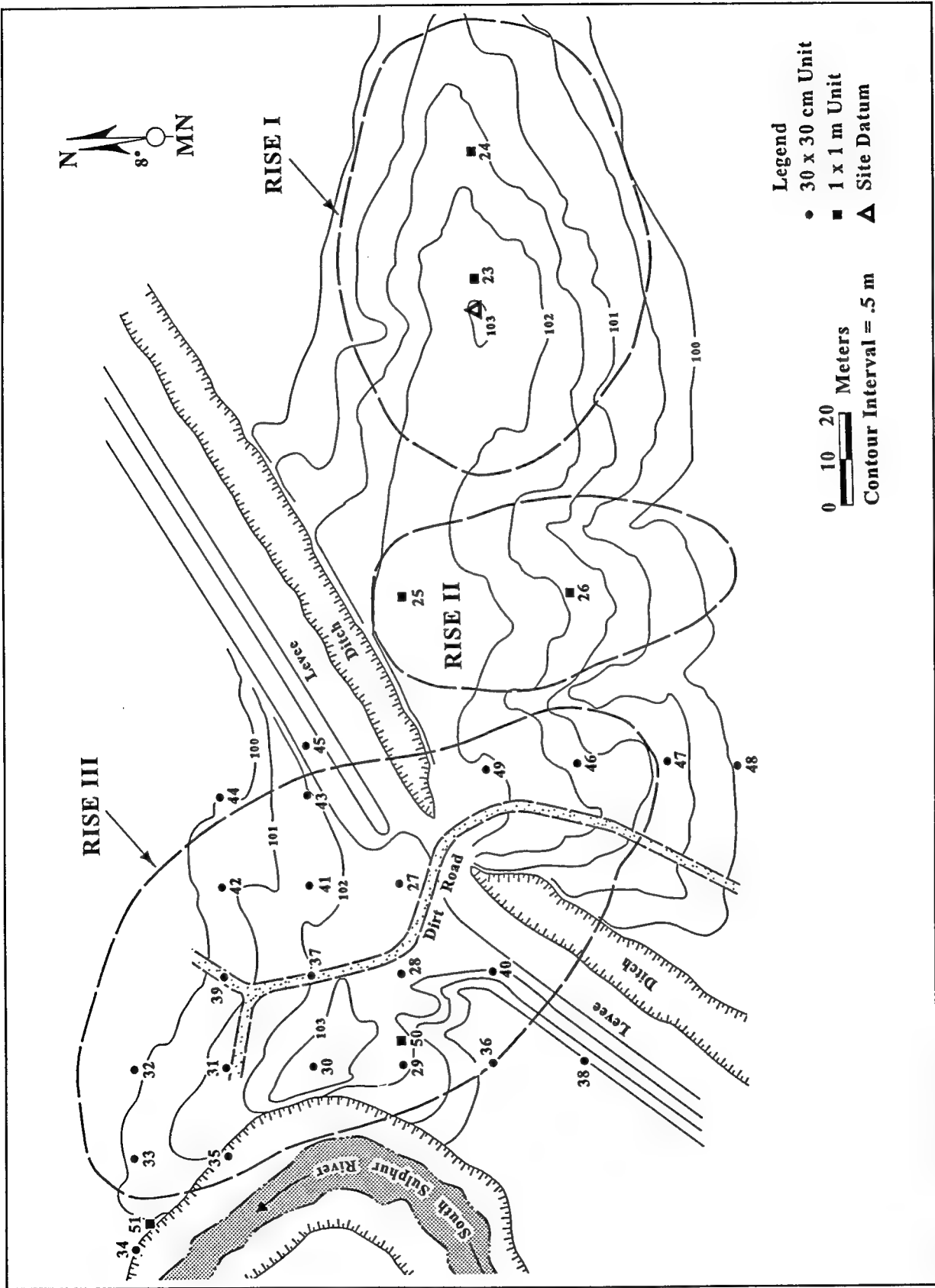


Figure 9-1. Map of 41HP78: the Lawson site; showing Rises I, II, and III.

a large slough. The floodplain along the base of the knoll demarcates the site limits to the south and north. The knoll itself is made up of three lobes, labeled Rises I, II, and III (Hyatt et al. 1974). Rise I, on the eastern half of the site, is the largest of the three and contains the densest concentration of artifacts, including a midden deposit. Rise II is located roughly 20 m (65.6 ft) west of Rise I, and it too contains a midden deposit. Rise III is situated ca. 15 m (49.2 ft) west of Rise II and continues across the levee all the way to the river.

Most of the landform is covered by old fields comprised of grasses and forbs with a few scattered clusters of trees, with ca. 25% of the knoll covered in hardwood forest; mainly oaks and pecans. The northern and western portions of the site are encompassed by a hardwood forest paralleling the levee, and the easternmost edge of the site is also forested (Figure 9-1).

The soil for the entire knoll is mapped as Kaufman clay (Lane 1977), but in reality, the soils map is very imprecise and glossed over a great deal of variation from one end of the site to the other. Apparently, the knoll is too small to be differentiated on the soils map, so it was grouped together with the floodplain clay which surrounds it. In reality, the vast majority of Rise I consists of a compacted silty loam A horizon overlying a yellowish brown silty clay B horizon, although the western part of the rise is characterized by a sandy loam A horizon overlying a sandy clay B horizon. The soil on Rise II is much sandier, characterized by a dark sandy loam A horizon overlying a lighter sandy B horizon. The soil along Rise III on the west side of the levee is quite deflated, with a shallow sandy loam A horizon overlying a reddish brown clay B horizon.

Portions of the knoll are eroded, probably as a result of agricultural practices such as repeated plowing. The shallow depth of the A horizon on top of Rises I and III, coupled with a greater depth of the A horizon downslope, indicates that some deflation occurred on all of the rises. Soil was removed from the crest of the slopes and redeposited downslope. It is difficult to determine whether or not the wooded portion of the site was once cultivated, but it is almost certain that no cultivation had occurred since the construction of the levee, ca. 1930 according to Hyatt et al. (1974:58).

SURVEY AND TESTING

When first recorded in 1970, artifacts eroding out along the surface of the pasture were collected. A sample of 528 artifacts was recovered, including eight dart points, one arrow point, and 27 ceramic sherds. On the basis of this collection, the site was categorized as a multicomponent site resulting from Archaic and Caddoan

occupations. In addition, evidence for activities such as tool manufacture, hunting, gathering, and cooking was noted. The abundance of artifacts and well preserved bone prompted the investigators to suggest that test excavations be conducted to determine whether or not full scale excavations were warranted (Hyatt and Skinner 1971).

In 1972, SMU researchers began the testing program by laying out a roughly east-west baseline (actually oriented 17 degrees west of magnetic north) which crossed all three rises. Three transverse lines intersected this base line at 90 degree angles, forming three north-south base lines, one crossing the center of each rise. These four base lines were used to form the grid system used for excavation. Twenty-two excavation units were distributed across the site intuitively, rather than by means of statistical sampling techniques, in an attempt to maximize areal coverage and concentrate on areas where the majority of cultural materials had been found during survey. Rise I was tested to a far greater extent than the other two rises, with 18 units as opposed to three on Rise II and only one on Rise III (Figure 9-2). Excavation techniques included excavating 1 x 1 m (3.28 x 3.28 ft) units in arbitrary 10 cm (3.9 in) levels and dry screening the matrix through 6.4 mm (.25 in) mesh. However, in order to speed up the excavation process, only the upper levels yielding most of the artifacts were screened (Hyatt et al. 1974:58).

During the testing phase, excavators noted two hearths on Rise I in Units 3 and 9, at depths of 16 and 20 cm (6.3 and 7.9 in) respectively. These hearths (Hearths 1 and 2) were described as accumulations of charcoal without concentrations of fire-cracked rock or indications of activity areas surrounding the hearths. Charcoal from Hearth 2 was radiocarbon dated at 2080 ± 60 B.P. (Tx-1961, uncorrected; Valastro et al. 1978:253) or 172 ± 101 B.C. (Tx-1961, corrected; Bousman, Collins, and Pertulla 1987:28-29). Daub fragments containing pole impressions indicative of structural remains were found near the eastern end of this rise. Units 5, 17, 19, and 22 were excavated within this area of daub concentration in an attempt to uncover a structure (Hyatt et al. 1974:62). Although numerous artifacts were recovered, no structure was found.

A listing of the artifacts recovered during the 1972 testing program is presented in Table 9-1 (abstracted from Table 13 in Hyatt et al. 1974:62-65). A total of 126 ceramic sherds was recovered; only Units 3, 8, and 14 were devoid of ceramics. Most sherds were grog tempered, but 11% were tempered with a mixture of grog and bone, 1% were tempered with a mixture of grog and sand, and 1% were shell tempered. Of the 126 sherds recovered, only five were decorated; two were incised, one was punctated, and two exhibited both punctuation and

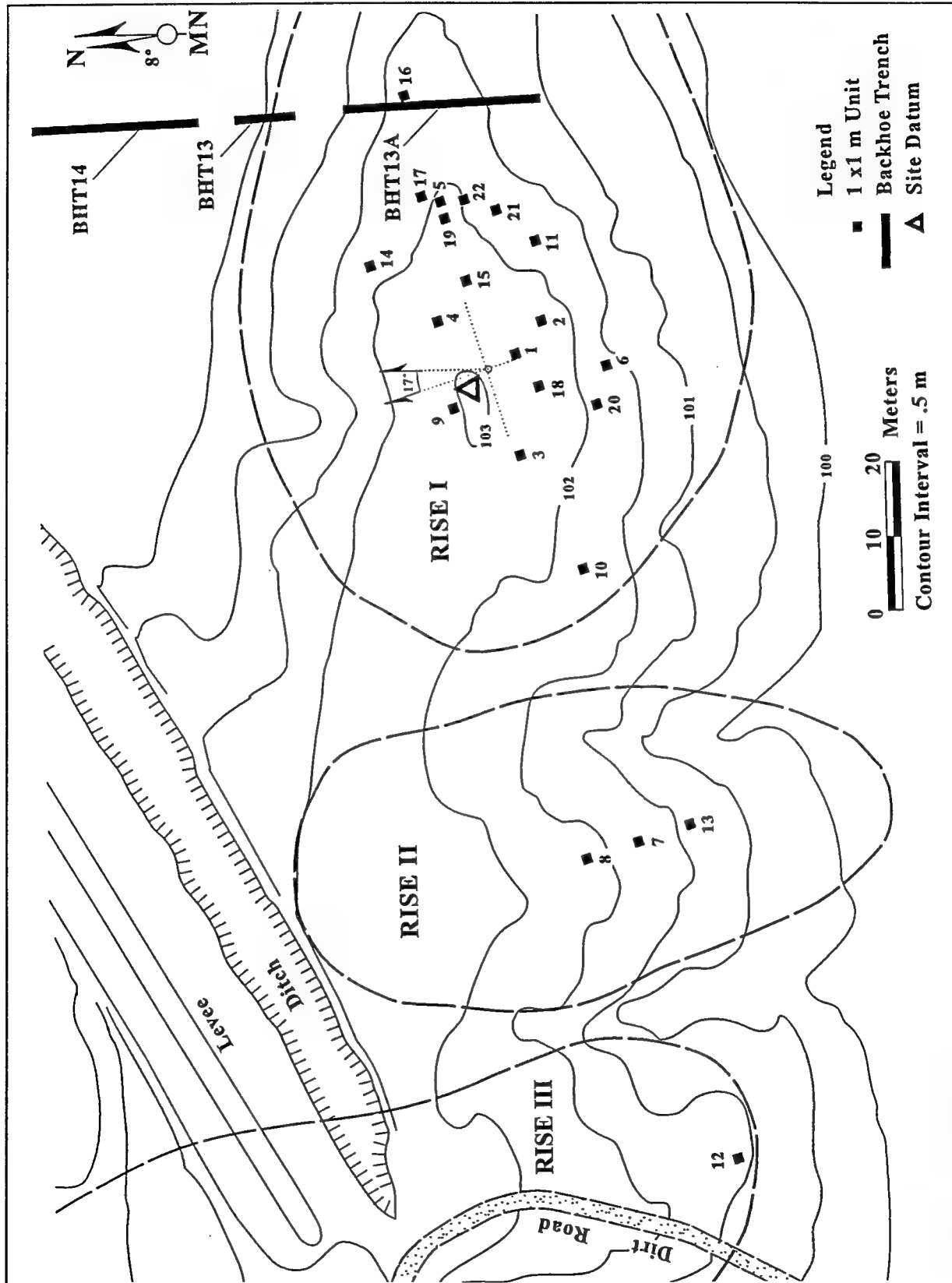


Figure 9-2. Location of the 1972 test excavation units.

TABLE 9-1

41HP78 Artifacts Recovered From 1972 Test Excavations In 1972 By Unit And Level

Unit	Level	Lithic Debris	Cores/ Biface	Dart Points	Arrow Points	Retouched Pieces	Fire-Cracked Rock	Ground Stone	Ceramics	Bone	Total
1	0-10	174	5	—	—	2	70	—	11	51	313
	10-20	13	1	—	—	1	5	—	—	—	20
	20-30	—	—	—	—	—	2	—	—	—	2
	30-40	21	2	1	—	—	13	—	—	—	37
Subtotal		208	8	1	—	3	90	—	11	51	372
2	0-10	103	6	1	—	—	58	—	5	31	204
	10-20	70	2	—	—	6	79	—	12	88	257
	20-30	33	2	—	—	—	29	—	6	27	97
	30-40	5	—	—	—	—	5	—	1	5	16
Subtotal		211	10	1	—	6	171	—	24	151	574
3	0-10	118	1	2	2	2	67	—	—	1	193
	10-20	38	2	—	—	1	15	—	—	—	56
	20-30	12	—	—	—	—	3	—	—	—	15
Subtotal		168	3	2	2	3	85	—	—	1	264
4	0-10	111	3	—	—	1	36	—	1	—	152
	10-20	154	5	—	—	—	70	—	3	—	232
	20-30	72	1	—	—	2	12	—	—	1	88
Subtotal		337	9	—	—	3	118	—	4	1	472
5	0-10	206	6	1	—	4	113	1	13	4	348
	10-20	258	14	—	—	8	177	—	7	6	470
	20-30	230	10	—	—	8	129	—	3	3	383
	30-40	137	4	—	—	4	111	—	—	—	256
Subtotal		831	34	1	—	24	530	—	23	13	1,457

Table 9-1 (cont.)

Unit	Level	Lithic Debris	Cores/ Biface	Dart Points	Arrow Points	Retouched Pieces	Fire-Cracked Rock	Ground Stone	Ceramics	Bone	Total
6	0-10	121	4	—	—	1	58	—	3	8	195
	10-20	47	1	—	—	2	29	—	1	2	82
	20-30	14	—	—	—	—	11	—	—	—	25
Subtotal		182	5	—	—	3	98	—	4	10	302
7	0-10	16	—	—	—	2	25	—	2	32	77
	10-20	23	1	—	—	—	53	—	3	30	110
	20-30	24	1	—	—	—	38	—	1	19	83
	30-40	26	1	—	—	1	32	—	—	8	68
Subtotal		89	3	—	—	3	148	—	6	89	338
8	0-10	6	1	—	—	1	17	—	2	—	27
	10-20	8	—	—	—	—	10	—	1	—	19
	20-30	4	—	—	—	1	5	—	—	—	10
	30-40	2	—	—	—	—	6	—	—	1	9
Subtotal		20	1	—	—	2	38	—	3	1	65
9	0-10	66	2	—	—	1	42	—	1	—	112
	10-20	60	—	—	—	2	25	—	1	—	88
	20-30	15	1	—	—	—	4	—	—	—	20
Subtotal		141	3	—	—	3	71	—	2	—	220
10	0-10	36	1	1	—	—	18	—	—	—	56
	10-20	32	1	—	—	1	30	1	2	—	67
	20-30	7	—	—	—	—	6	—	—	—	13
Subtotal		75	2	1	—	1	54	1	2	—	136

Table 9-1 (cont.)

Unit	Level	Lithic Debris	Cores/ Biface	Dart Points	Arrow Points	Retouched Pieces	Fire-Cracked Rock	Ground Stone	Ceramics	Bone	Total
11	0-10	223	5	1	2	6	83	—	8	50	378
	10-20	97	2	—	1	—	50	—	4	15	169
Subtotal		320	7	1	3	6	133	—	12	65	547
12	0-10	40	2	—	—	1	34	—	3	3	83
Subtotal		40	2	—	—	1	34	—	3	3	83
13	0-10	—	—	—	—	—	48	—	3	14	65
	10-20	4	1	—	—	1	41	—	—	5	52
	20-30	2	—	—	—	—	24	—	—	—	26
	30-40	—	1	—	—	—	1	—	—	—	2
Subtotal		6	2	—	—	1	114	—	3	19	145
14	0-10	85	4	—	—	3	24	—	—	—	116
	10-20	23	1	—	1	1	4	—	—	—	30
	20-30	39	2	1	—	—	8	—	—	—	50
	30-40	11	—	—	—	—	4	—	—	—	15
Subtotal		158	7	1	1	4	40	—	—	—	211
15	0-10	136	6	—	1	2	70	—	1	—	216
	10-20	48	—	1	—	—	17	—	—	—	66
Subtotal		184	6	1	1	2	87	—	1	—	282
16	0-10	27	1	—	—	2	13	—	—	—	43
	10-20	35	2	—	—	—	27	—	1	—	65
	20-30	39	2	—	—	—	14	—	—	—	55
Subtotal		101	5	—	—	2	54	—	1	—	163

Table 9-1 (cont.)

Unit	Level	Lithic Debris	Cores/ Biface	Dart Points	Arrow Points	Retouched Pieces	Fire-Cracked Rock	Ground Stone	Ceramics	Bone	Total
17	0-10	214	6	2	—	12	148	—	4	3	389
	0-20	229	11	—	—	—	99	—	—	—	339
	20-30	108	6	1	—	3	33	—	—	—	151
	30-40	7	1	1	—	—	10	—	—	—	19
Subtotal		558	24	4	—	15	290	—	4	3	898
18	0-10	86	4	—	—	—	37	—	3	11	141
	10-20	69	3	—	—	—	21	—	6	8	107
	20-30	7	—	—	—	—	2	—	—	—	9
Subtotal		162	7	—	—	—	60	—	9	19	257
19	0-10	136	5	—	—	7	89	—	5	4	246
	10-20	107	4	1	—	2	35	1	—	—	150
	20-30	26	2	—	—	—	16	—	—	—	44
Subtotal		269	11	1	—	9	140	1	5	4	440
20	0-10	36	2	—	1	1	14	—	2	—	56
	10-20	19	1	—	—	3	11	—	—	—	34
	20-30	9	—	—	—	—	—	—	—	—	9
Subtotal		64	3	—	1	4	25	—	2	—	99
21	0-10	127	1	—	1	4	51	—	4	3	191
	10-20	80	2	1	—	—	32	—	2	3	120
Subtotal		207	3	1	1	4	83	—	6	6	311
22	0-10	162	4	—	—	3	89	—	10	6	274
	10-20	87	5	—	—	3	42	—	2	14	153
Subtotal		249	9	—	—	6	131	—	12	20	427
Total		4,580	164	15	9	105	2,593	3	137	456	8,063

incising. These latter two sherds were classified as Pennington Punctated-Incised, a type associated with the Alto focus of the Gibson Aspect (Hyatt et al. 1974:67). Deer and box turtle elements were the most common faunal remains recovered; but raccoon, fox, beaver, other small mammal, and bird elements were also recognized in the faunal assemblage.

On the basis of Archaic period dart points and Late Prehistoric period ceramics, Hyatt et al. (1974) concluded that Lawson was a multicomponent site made up of Archaic and Caddoan occupations. The two sherds identified as Pennington Punctated-Incised were taken as evidence for an early Caddoan, Gibson Aspect occupation, whereas the shell tempered sherds were interpreted as the result of later Fulton Aspect occupation. Most artifacts were recovered from the upper 10-20 cm (3.9-7.9 in) and artifact frequencies declined in the lower levels. This was interpreted as support for a demographic model of increasingly intensive occupation over time (Hyatt et al. 1974:70).

This interpretation could have been entertained only if the landform had been aggrading, burying the refuse of each occupation to form stratigraphic layers. However, no evidence for aggradation exists on the knoll. On the contrary, the landform appears to have been eroded, so the vertical distribution of artifacts must have been the result of artifact mixture due to bioturbation and plowing. Due to the large site size, Hyatt et al. (1974:70) suggested that mechanical earth-moving equipment might be useful for uncovering cultural features, but concluded that the results probably would not justify the expense involved. Therefore, they recommended no further work for this site.

No more work was conducted at the Lawson site until 1986, when a crew from North Texas State University re-investigated the site as part of a program of relocation and re-evaluation of Cooper Lake sites. The goal of this testing program was to examine the significance and research potential of the deposit at the eastern end of the site, which would be adversely impacted during construction of the diversion channel for the South Sulphur River. The work consisted of the excavation of a series of 30 x 30 cm (11.8 x 11.8 in) shovel tests across Rise I, and examination of erosional areas across the site. Prehistoric material was observed washing out of the levee ditch and in eroded patches next to the river (Perttula 1987:5-10). The shovel tests uncovered prehistoric artifacts down to a depth of 25 cm (9.8 in) below surface and revealed the existence of a preserved midden along the eastern end of Rise I. Once the midden was discovered, several backhoe trenches were dug to explore its extent.

Three backhoe trenches were excavated beginning toward the crest of the rise and extending downslope to the north and onto the floodplain (Figure 9-3). These trenches were labeled BHT 13, 13A, and 14 and extended in a roughly north-south line that was ca. 47 m (154.2 ft) long (Perttula 1987:5-12). The trench numbers began with BHT13 because NTSU numbered backhoe trenches consecutively within the entire study area, rather than numbering them on a site by site basis; BHT 1-12 were located at other sites. Prehistoric material was observed in six representative profiles cut along the trenches, and intact midden deposits were observed in the southern end of BHT 13A, almost exactly on the crest of the rise. This midden, estimated to cover about 1100 m² (3608.9 ft²) was described as consisting of very dark gray (10YR3/1) silty loam, ca. 44 cm (17.3 in) thick which was underlain by light yellowish brown (10YR6/4) clay.

Further north, in the floodplain, BHT 14 revealed ca. 32 cm (12.6 in) of very dark gray (10YR3/1) clay, including a 14 cm (5.5 in) plow zone (Zones I and II). Below this, Zone III consisted of 48 cm (18.9 in) of dark grayish brown (10YR4/2) silty clay overlying Zone IV, consisting of dark gray to very dark gray (10YR4/1 to 3/1) clay (Perttula 1987:Figure 5-2). Artifacts were observed in Zones II and III between 15-81 cm (5.9-31.9 in) below surface. Toward the north end of this trench, artifacts were present in Zones I and II. This shallow material was attributed to slopewash off of Rise I, but no explanation was hypothesized to account for the origin of the deeper material. It was recommended that further studies be conducted to resolve this problem. Additional backhoe trenching of Rise I and a more comprehensive testing program for Rises II and III were suggested.

During the 1987 testing phase, subsurface investigations were conducted by SMU to follow up on the initial testing conducted by NTSU. This phase of testing involved additional backhoe work and controlled hand excavation on Rises I, II, and III. First, the NTSU backhoe trenches were relocated and reflagged, and an east-west baseline was established across all three rises with a transit. A permanent datum (N0 E0) was set on what was estimated to be the highest portion of Rise I (Figure 9-3). Two 1 x 1 m (3.28 x 3.28 ft) units were excavated on Rise I; Unit 23 was located near the top of the rise and Unit 24 was located slightly west of BHT 13A. On Rise II, two more 1 x 1 m (3.28 x 3.28 ft) units were excavated. Unit 25 was placed on the northern end of the rise, while Unit 26 was located closer to the center of Rise II. All of these 1 x 1 m (3.28 x 3.28 ft) units were dug down to clay in arbitrary 10 cm (3.9 in) levels, with the matrix dry screened through 6.4 mm (.25 in) mesh. Depth of the deposit ranged from 30 cm (11.8 in) to as

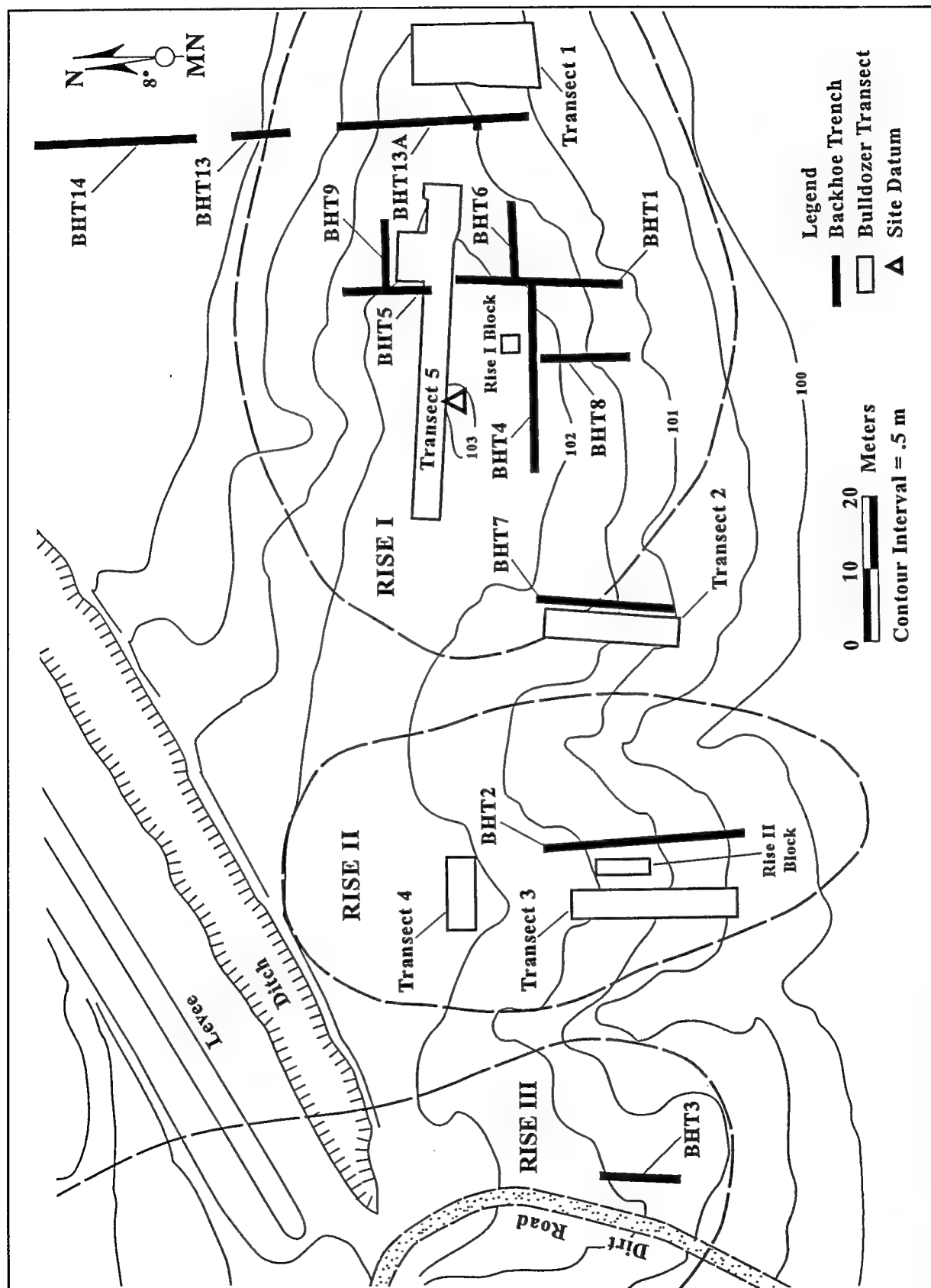


Figure 9-3. Location of the backhoe trenches, excavation units, and bulldozer transects at 41HP78: the Lawson site.

deep as 50 cm (19.7 in) below surface, although most artifacts were recovered from the upper 20 cm (7.9 in).

While these units were being excavated, NTSU's old backhoe trenches were re-excavated and extended to the north and south in order to clarify the natural and cultural stratigraphy. BHT 13A, originally about 12 m (39.4 ft) long, was extended 14.5 m (47.6 ft) to the south. This extension was labeled BHT 13A-South. BHT 14, originally about 12.5 m (41 ft) long, was extended to both the north and south for a maximum length of 25.5 m (83.7 ft); however, these extensions were not labeled separately. The entire trench was labeled BHT 14.

Following the excavation of 1 x 1 m (3.28 x 3.28 ft) units on Rises I and II, 23 30 x 30 cm (11.8 x 11.8 in) units (Units 27-49) were dug at 20 m (65.6 ft) intervals across Rise III to better define site limits and depth of the deposit (see Figure 9-1). The level of excavation on Rise III was more intensive because this portion of the site had not been tested during either of the earlier testing programs. All of these units were dug down to clay as a single level, with the matrix dry screened through .25 in (6.4 mm) mesh. Of these units, 15 contained prehistoric cultural materials: ten (Units 28-30, 37, and 40-45) were clustered on top of the rise, three (Units 32-34) were along its northeastern slope, and two (Units 46-47) were along the slope southeast of the levee. In addition to the 30 x 30 cm (11.8 x 11.8 in) units, two 1 x 1 m (3.28 x 3.28 ft) units were placed on Rise III west of the levee to further explore the nature of the deposit. Unit 50 was dug near the top of the rise, whereas Unit 51 was excavated on the northwestern edge of the rise, near the area where prehistoric material had been observed eroding out along the river.

Three new backhoe trenches were excavated (one on each rise) while the crew excavated the units on Rise III. BHT 1 was situated midway between Units 23 and 24 running south of the baseline for a distance of 21.5 m (70.5 ft). BHT 2 was 28 m (91.8 ft) long, oriented north-south, and was excavated about 3 m (9.8 ft) east of Unit 26. BHT 3 was a short (9 m [29.5 ft] long) north-south trench excavated on Rise III southeast of the levee, between Units 46 and 47.

The results of the testing program were quite informative, yielding artifacts, cultural features, and radiocarbon dates. The contents of each rise are summarized below. Specific tool types are recorded in tables presented later in this chapter, along with the types recognized from the intensive excavations.

On Rise 1, in BHT 13A-South, two well-defined cultural features (Features 1 and 2) characterized by steep vertical walls and flat bottoms were uncovered. Feature 1, observed in the west profile and bottom of BHT 13A-South, was a grave pit containing human skeletal remains

(Burial 1). The pit measured 92 cm (36.2 in) across and was excavated to a depth of 84 cm (33.1 in) below surface before the skeletal remains were uncovered and excavation ceased. The remains were reburied for later excavation during the mitigation phase. Charcoal from the fill was radiocarbon dated at A.D. 210 \pm 130 (SMU-1878, corrected), placing this burial within the first part of the Early Ceramic period. Feature 2 was another vertical-walled pit containing a human burial (Burial 2); it was found in the east profile of BHT 13A-South about 2 m (6.7 ft) south of Feature 1. It measured 72 cm (28.3 in) across and was excavated to a depth of 59 cm (23.2 in) below surface. A possible posthole 12-16 cm (4.7-6.3 in) in diameter was found in the base of the trench 10 cm (3.9 in) west of Feature 2. In BHT 1, the bottom of a basin-shaped pit was observed in the west profile. This pit, which was not numbered, measured 175 cm (68.9 in) across and extended down 43 cm (16.9 in) below surface.

On Rise II, a fairly large midden was discovered which had some possible postholes and pits intrusive into it. The entire length of BHT 2, except for the southernmost 4 m (13.1 ft), contained easily identifiable cultural materials. A dark grayish brown silty loam midden with excellent preservation of bone, shell, and charcoal extended along 18.5 m (60.7 ft) of the trench. Two vertical-walled flat bottomed pits, one intrusive into the other, were observed in the west profile about 10 m (32.8 ft) south of the northern end of BHT 2. The earliest pit measured 50 cm (19.7 in) across and extended down 51 cm (20.1 in) below surface, whereas the intrusive pit measured 59 cm (23.2 in) across and only extended down 40 cm (15.7 in) below surface. South of these pits, the contact between the A and B horizons was undulating, but two undulations extended deeper than others and were tentatively identified as pits. The first measured ca. 80 cm (31.5 in) across and 35 cm (13.8 in) deep, while the second was about 75 cm across and 40 cm (15.7 in) deep. Three smaller, less distinct depressions were tentatively identified as postholes: the first was 20 cm (7.9 in) across and 33 cm (13 in) deep, the second was 10 cm (3.9 in) across and 33 cm (13 in) deep, and the third was 22 cm (8.7 in) across and 43 cm (16.9 in) deep.

On Rise III, the largest concentration of cultural remains was located on top of, and along the northeast slope of, the area west of the levee. This area measured ca. 90 m (295.3 ft) northeast-southwest by 55 m (180.4 ft) northwest-southeast. A smaller concentration was observed on the northwest edge of Rise III in an area measuring roughly 20 m (65.6 ft) north-south by 55 m (180.4 ft) east west. The smallest concentration was observed east of the levee in an area measuring 33 m (108.3 ft) north-south by 28 m (91.9 ft) east-west. These three artifact concentrations were all appreciably sparser

than those observed on Rises I and II, and no cultural features were observed. Therefore, only Rises I and II were targeted for additional work during the intensive excavation phase.

Site stratigraphy varied to some degree across the site. Although more detailed discussion of stratigraphy is reported in a subsequent section of this chapter, a brief summary is required here. The Rise I midden deposit identified by NTSU was not clearly visible in BHT 13A and BHT 13A-South. Although artifacts were present throughout the dark soil layer, bone and shell preservation was very poor. The profile was characterized by very dark grayish brown sandy to silty loam 35 cm (13.8 in) thick on top of the rise, lensing out to a thickness of about 20 cm (7.9 in) at the northern and southern ends of the trench. A yellowish brown sandy clay B horizon was observed beneath the midden deposit. BHT 1 contained a definite midden deposit with excellent faunal preservation 16-19 cm (6.3-7.5 in) thick, in a 6 m (19.7 ft) long area in the center of the trench.

On Rise II, Unit 25 was characterized by 27 cm (10.6 in) of mottled sandy loam overlying a dark brown mottled clay B horizon; relict plow scars were observed indicating that this portion of the knoll had been cultivated at one time. Further downslope in Unit 26, a midden deposit was noted which was comprised of a dark grayish brown midden with excellent faunal preservation. BHT 2 exposed the north-south limits of this midden deposit, which began 2.5 m (8.2 ft) south of the northern end of the trench and extended 18.5 m (60.7 ft) to the south. The midden was a dark grayish brown mottled silty loam 20-30 cm (7.9-11.8 in) thick, with a high density of bone, shell, and charcoal. On Rise III, the depth of the deposit ranged from 10-40 cm (3.9-15.7 in). Most 30 x 30 cm (11.8 x 11.8 in) units exhibited dark grayish brown silty loam 10-30 cm (3.9-11.8 in) thick, overlying light grayish brown clay. Unit 51, on the other hand, was characterized by 40 cm (15.7 in) of yellowish brown sandy loam overlying reddish brown silty clay.

Only those units excavated on Rises I and II yielded faunal and floral remains suitable for subsistence studies. Likewise, ceramics were recovered only from these portions of the site. No artifacts at all were recovered from Units 27, 31, 35, 36, 38, 39, 48, and 49 which fell outside the limits of the site on Rise III. Rise III produced lithic artifacts, but little else. It is possible that the Rise III deposit was created solely by Archaic period occupation, but without radiocarbon dates or diagnostic artifacts, this interpretation is merely speculative. Due to the relatively low density of artifacts observed on Rise III, it seems likely that this portion of the site was never utilized to any great extent.

The presence of arrow points and ceramics indicated that a Late Prehistoric period occupation was responsible for a major portion of the archaeological deposit at Lawson, but the early radiocarbon dates indicated that intact Late Archaic or Early Ceramic period deposits also existed. The high concentration of artifacts and the presence of midden deposits suggested that the assemblage was the result of repeated occupations, presumably seasonal occupations, due to the annual flooding which surrounds the knoll each spring. The abundance of artifacts, excellent bone preservation, good potential for detecting features, abundance of datable materials, and the potential for the discovery of additional burials made this site attractive for additional investigation. These kinds of data were ideally suited for addressing the research questions related to subsistence, settlement systems, and chronology posed in the research design. In addition, this site was one of the few in the entire reservoir with the potential for addressing research questions pertaining to the Late Archaic period.

INTENSIVE INVESTIGATION

Intensive investigation of the Lawson site occurred in June and July of 1987. The field methodology and excavation strategy were designed to obtain a maximum amount of data from the midden deposits and to uncover and excavate features which could shed light on the nature of both the early and late period occupations. All intensive excavation efforts were concentrated in on Rises I and II, which encompassed the midden deposits and cultural features.

The work at Lawson was undertaken to acquire as much data as possible, and analyze as much of it as funding would permit after all other research obligations had been met. The contents of some of the features that were excavated were quantified at lower levels, and special analyses completed. Additional samples have been curated in order that they may be examined when appropriately funded.

Excavation Methodology

The selection of the sampling methodology used at the Lawson site was guided by the criteria discussed in the research design. Briefly restated, the principal criteria included the ability of the methodology to locate significant deposits quickly, to permit accurate spatial analysis of artifact and feature distributions, to recover datable remains necessary to assess the chronology of the deposit, and to recover floral and faunal remains required to understand subsistence patterns. In order to locate

deposits of magnetic and cultural interest, a magnetic survey and a galvanic resistivity survey were conducted. Based on the results of test excavations and these remote sensing studies, block excavations were conducted within areas which offered the greatest potential for the recovery of datable materials and identifiable floral and faunal remains.

The matrix from most excavation units was water screened, including a fine screen sample taken from each level. Flotation samples were collected from all cultural features to recover carbonized floral remains, and radiocarbon samples were taken whenever possible to assess the chronological correlation of features and artifact types. As a result of these techniques, enough information was recovered to reconstruct many of the activities conducted at the site, identify the major periods of site occupation, and address the nutritional and health status of the population.

Magnetic Survey

Prior to the intensive excavations, a magnetic survey was conducted over a 20 x 20 m (65.6 x 65.6 ft) block surrounding the datum on Rise I, and over a 10 x 20 m (32.8 x 65.6 ft) block situated 5 m (16.4 ft) to the east of the first block. These two blocks straddled BHT 1, with one on each side of the trench (Figure 9-4). The coordinates for the four corners encompassing the western magnetic survey area were S10 W5, S10 E15, N10 W5, and N10 E15; those for the eastern block were S10 E20, S10 E30, N10 E20, and N10 E30. A dual-bottle proton magnetometer was used to measure the total magnetic intensity at each measurement locality. With this instrument, both the search bottle and the reference bottle operated from a single magnetometer, as opposed to other dual-bottle methods which use two separate magnetometers. This new design eliminated fluctuations in readings due to slight differences affecting individual magnetometers.

Readings were taken at 1 m (3.28 ft) intervals with the search bottle held ca. 30 cm (11.8 in) above the ground surface, oriented in a east-west direction. The reference bottle was situated about 20 m (65.6 ft) from the survey area, also in an east-west orientation. The number recorded for each locality represented the difference between the two bottles. For example, positive values indicated that the magnetic field at the search bottle was greater than that at the reference bottle. This method permitted control over the effects of diurnal variation in the earth's magnetic field.

Resistivity Survey

After the magnetic survey had been completed, a galvanic resistivity survey was conducted over a 10 x 10 m (32.8 x 32.8 ft) block on Rise I. The survey area was laid out on the east side of BHT 1 (Figure 9-4). The coordinates for the four corners encompassing the resistivity survey area were S0 E21, S0 E31, S10 E21, and S10 E31. Four electrodes arranged in the Wenner array (e.g., electrodes spaced evenly along a straight line) were used to conduct horizontal profiling, the process by which lateral variations in resistivity are detected. Readings were taken at 50 cm (19.7 in) intervals across the block by passing a current between two electrodes and measuring the potential difference with the other two electrodes. Resistivity, measured in ohm meters, can generally be correlated with lithology. In unconsolidated sediments, resistivity is directly related to the amount of water in the sediment, its salinity, and its distribution within the sediment. Resistivity decreases as the water content increases, and decreases further as the salinity increases.

Block Excavation

Two blocks were excavated, one within the midden deposit on Rise I and the other in the midden deposit on Rise II (Figure 9-5). Units excavated in both blocks were 1 x 1 m (3.28 x 3.28 ft) units dug in arbitrary 10 cm (3.9 in) intervals. The Rise I Block was sampled by four units (Units 68-71) arranged in a 2 m (6.7 ft) square. This 2 x 2 m (6.7 x 6.7 ft) block was excavated to recover a controlled sample from the deposit. All units were dug down to 40 cm (15.7 in) below ground surface. The small size of this block was dictated by the narrow time frame allotted for the completion of mitigation. In addition to the Rise I block, two 100 x 50 cm (39.4 x 19.7 in) units were excavated on Rise I next to BHT 8 in order to investigate Feature 28 (Figure 9-5).

The results of the testing phase excavations indicated that Rise II was a prime area for data recovery within a midden context. Therefore, a block of contiguous 1 x 1 m (3.28 x 3.28 ft) units measuring 2 m (6.7 ft) east-west by 5 m (16.4 ft) north-south was emplaced between S20-S26 and W62-W63. Unit numbers were assigned starting with Unit 52 in the northeast corner, and proceeding consecutively from east to west down to Unit 63 in the southwest corner (Figure 9-5). Units were excavated down through the dark midden layer until the underlying light brown matrix was exposed and cultural features could be more easily observed. In most cases units were

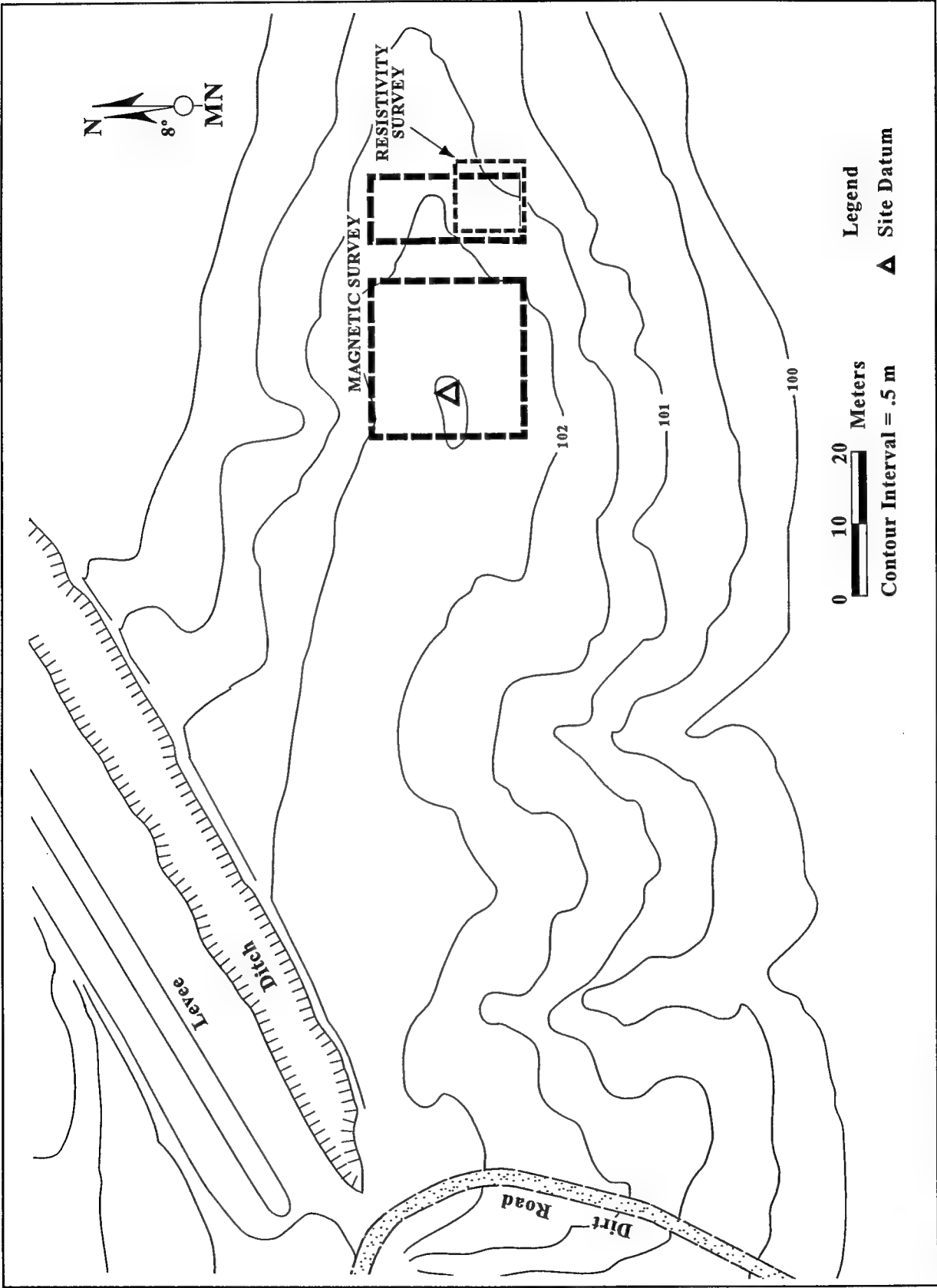


Figure 9-4. Map of magnetic survey and resistivity survey areas.

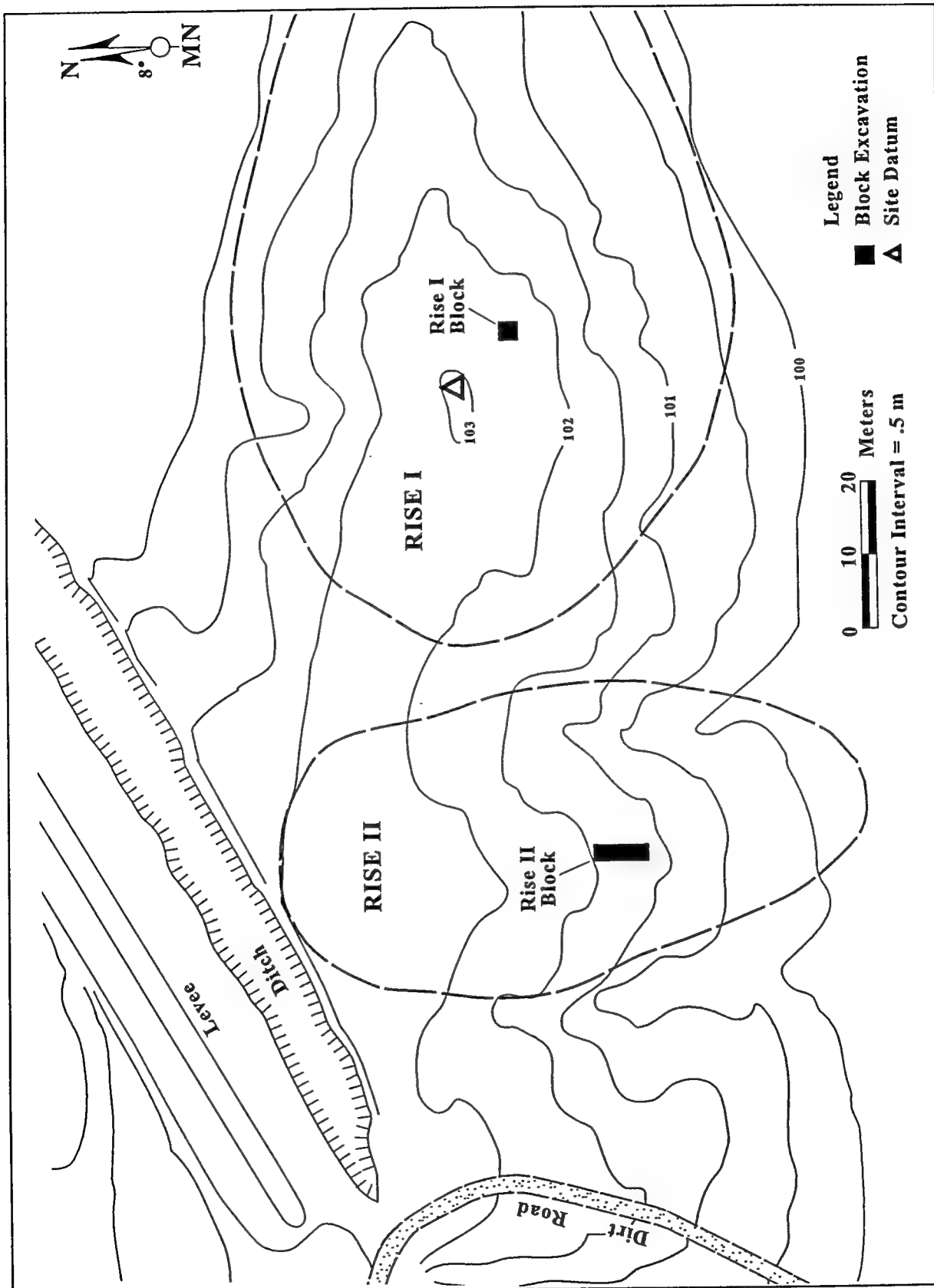


Figure 9-5. Location of block excavations on Rises I and II.

dug down three levels. However, the midden extended a little deeper in units along the north wall of the block, so four levels were excavated in Units 52 and 53. When cultural features were encountered, they were numbered consecutively, and burials inside features received separate burial numbers. Once a feature was observed, a fresh surface was scraped with a trowel to define the feature boundaries and it was mapped in plan view. Then a cross section was excavated, and the profile was mapped and photographed. Two number 10 buckets of fill were saved for flotation, and any remaining matrix was water screened through 6.4 mm (.25 in) mesh.

Backhoe Trenches

In addition to the three backhoe trenches (BHT 1-3) excavated during the testing phase, seven new backhoe trenches (BHT 4-10) totaling 93 m (305.1 ft) in length were excavated on Rise I to examine the natural and cultural stratigraphy of the landform (see Figure 9-3). The total length of all backhoe trenches excavated at the site, including NTSU's trenches and SMU's testing phase trenches, was ca. 212 m (695.5 ft). Most trenches were only excavated to a depth of 50 cm (19.7 in) below surface because their stratigraphy consisted of 30-40 cm (11.8-15.7 in) of dark grayish brown A horizon on top of a yellowish brown clay B horizon. Only BHT 5, BHT 9, and BHT 10, which encountered large pit features, were excavated deeper. BHT 5 reached a maximum depth of 130 cm (51.2 in), BHT 9 reached a depth of 165 cm (64.9 in) below surface, and BHT 10 reached a depth of 150 cm (59 in).

BHT 4 intersected the west wall of BHT 1 and was dug 24 m (78.7 ft) to the west to determine the maximum western extent of the midden. BHT 5, a north-south trench about 12.5 m (41 ft) long, was dug to examine the large negative magnetic anomaly on the crest of the landform which was discussed previously. BHT 6 intersected the east wall of BHT 1 and extended 10 m (32.8 ft) east of BHT 1; it was dug to study the large high-resistivity anomaly previously mentioned. BHT 7 was a north-south trench measuring 19 m (62.3 ft) in length which was dug on the western end of Rise I. The relatively gradual slope along this area appeared to be a likely location for structures, so it was investigated to search for evidence of structures or additional midden deposits. BHT 8 was a north-south trench measuring 13 m (42.6 ft) in length which was excavated along the south slope of Rise I, immediately south of the center of BHT 4. It was excavated to determine the southern extent of the Rise I midden deposit. Finally, BHT 9 was an east-west trench about 10 m (32.8 ft) long which intersected the east wall of BHT 5. It was excavated to determine the extent of the

large pit found to be the source of the magnetic anomaly in BHT 5. BHT 10 was a very small trench, only 2.5 m (8.2 ft) long, which was dug to investigate the stratigraphy of Feature 25.

Mechanized Scraping

Mechanized removal of the A horizon was conducted to expose cultural features which had penetrated the B horizon. Mechanized scraping was conducted on both Rise I and Rise II (see Figure 9-3). Five transects were scraped: three on Rise I (Transects 1, 2, and 5) and two on Rise II (Transects 3 and 4). Transect 1 was two blade widths wide (ca. 7-8 m [22.9-26.2 ft]) and nearly 18 m (59 ft) long. It was excavated from the crest of the landform southward, in the area between BHT 13A and the treeline, in order to search for additional features. Transect 2, ca. 3.5 m (11.5 ft) wide and 16 m (52.9 ft) long, was excavated parallel to BHT 7 to search for structures because a possible posthole had been observed in the trench. Transect 3 was 3.5 (11.5 ft) m wide and 21 m (68.9 ft) long, but most of it was not taken down to the clay B horizon because a burial pit (Burial 3) was exposed by the dozer at a shallower depth. Transect 4, located near the north end of Rise II, was about 3.5 m (11.5 ft) wide and 9 m (29.5 ft) long. Transect 5 was excavated in an east-west direction along the crest of Rise I and was ca. 3.5 m (11.5 ft) wide and 43 m (141.1 ft) long. The portion of Transect 5 immediately east of BHT 5 was expanded to the north after postholes were discovered, in an effort to define a structure. This extension measured ca. 3.5 m (11.5 ft) by 5.5 m (18 ft).

First, a small bulldozer made several passes across the area, removing ca. 10-15 cm (3.9-5.9 in) of soil in each pass. The supervising archaeologist monitored the operation to prevent damage to features resulting from scraping too deeply. The bulldozer operator varied blade depth in response to signals from the archaeologist. Once most of the A horizon had been removed, a tractor with an adjustable backblade capable of peeling away a few centimeters of soil at a time was used to scrape a smooth surface. The depth of the scraped surface below the original ground surface varied from about 20-45 cm (7.9-17.7 in), depending on variation in the thickness of the A horizon in each transect. For instance, in Transect 5 on the top of the landform, which appeared to have been eroded, the B horizon was uncovered after the removal of only 20-25 cm (7.9-9.8 in) of soil.

After mechanized scraping was completed, crew members used sharpened hoes to scrape the surface clean enough to observe organic stains caused by cultural features. Finally, these stains were mapped and excavated. Identical procedures had been used very successfully at

several sites along Richland Creek (Bruseh and Martin 1987a) and at Joe Pool Lake (Peter and McGregor 1988a), and they proved to be equally as successful at Cooper Lake sites.

Excavation Results

During the course of the 1987 testing and intensive excavation phases, twenty-three 30 x 30 cm (11.8 x 11.8 in) units, two 50 x 100 cm (19.7 x 39.4 in) units, twenty-six 1 x 1 m (3.28 x 3.28 ft) units, and nine backhoe trenches were excavated at the Lawson site. In addition, five transects (465.75 m² [1528 ft²]) were scraped with a bulldozer. In the following sections, the site stratigraphy, and tools and other cultural materials recovered from these units are discussed, as well as the results of the magnetic and resistivity surveys. The cultural features are described, and the chronology and intrasite spatial patterning are assessed.

SITE STRATIGRAPHY

No geomorphological analysis was conducted on the knoll forming the Lawson site, but the soil characteristics indicated that the landform was probably a remnant of a terrace. Similar terraces were present only 600 m (1968.5 ft) to the west, across the South Sulphur River, so it seems possible that this remnant is part of the same terrace system. This section simply presents descriptions of the basic stratigraphy observed during the course of excavation. The profiles of all backhoe trenches excavated during the 1987 season are illustrated in Figure 9-6.

As previously noted, Rise I contained a midden deposit with excellent faunal preservation. Within the midden area, the Rise I profile was characterized by black silty loam 16-20 cm (6.3-7.9 in) thick near the crest of the rise, increasing in thickness to about 30-35 cm (11.8-13.8 in) along the slope. In all backhoe trenches, the organically enriched midden was visible as a black (10YR2/1) silty loam, gradually shifting to slightly lighter shades toward the outer edges of the midden, both horizontally and vertically (Figure 9-6). For example, in BHT 4, the indistinct line separating the midden from the natural A horizon west of the midden was marked by a shift from black (10YR2/1) to very dark brown (10YR2/2). The B horizon underlying both the midden was a brown (10YR5/3) sandy clay whereas beneath the A horizon, it was a yellowish brown (10YR5/4) sandy clay. The transition between the dark A horizon and the yellowish brown sandy clay B horizon was gradual and

indistinct, marked by mottled shades of gray and brown (10YR4/2 and 5/2).

Similarly, in BHT 8, the midden (10YR2/1) graded into a very dark gray (10YR3/1) matrix downslope (Figure 9-6). Further downslope from the midden, the A horizon matrix graded into a very dark grayish brown (10YR3/2), the color of the natural A horizon. The B horizon beneath the midden was brown (10YR5/3), whereas further downslope beneath the lighter A horizon, it was a light yellowish brown (10YR6/4). The darker color of the B horizon beneath the midden may have been caused by leaching of the higher level of organic matter within the midden, but similar colors were recorded for the B horizon west of the midden, so some other unknown factors may be responsible for the observed color differences. Outside of the midden deposit, along the western end of Rise I, BHT 7 revealed a very different profile. The A horizon was a much lighter color (10YR4/2 to 4/3) and it was much sandier than that observed within the midden (Figure 9-6). The B horizon was similar to that found on top of the rise, and the color range was nearly the same (10YR5/3 to 5/4). This trend toward a sandier deposit at the western end of the rise was noted in 1972 and attributed to deposition by high water prior to construction of the levee (Hyatt et al. 1974:61). Whether or not this interpretation is accurate, the fact remains that some process resulted in the creation of a sandier matrix at the western end of Rise I, as well as along most of Rise II.

As stated earlier, the top of Rise II was characterized by 27 cm (10.6 in) of mottled sandy loam overlying a dark brown mottled clay B horizon. Further downslope in the midden deposit, the soil was recorded as a very dark grayish brown (10YR3/2) silty loam, not quite as dark as that observed in the Rise I midden. However, faunal preservation was much better on Rise II than on Rise I, with a high density of bone, shell, and charcoal visible in the profile of BHT 2. The portion of the midden deposit observed in BHT 2 was 18.5 m (60.7 ft) long and 20-30 cm (7.9-11.8 in) thick. The east profile of the Rise II Block illustrates the observed stratigraphy (Figure 9-7).

Rise III was not excavated during the mitigation phase. All stratigraphic information was recorded during the testing phase. To reiterate, the depth of the deposit ranged from 10-40 cm (3.9-15.7 in) on Rise III. Most 30 x 30 cm (11.8 x 11.8 in) units exhibited dark grayish brown silty loam 10-30 cm (3.9-11.8 in) thick, overlying light grayish brown clay. Unit 51, on the other hand, was characterized by 40 cm (15.7 in) of yellowish brown sandy loam overlying reddish brown silty clay.

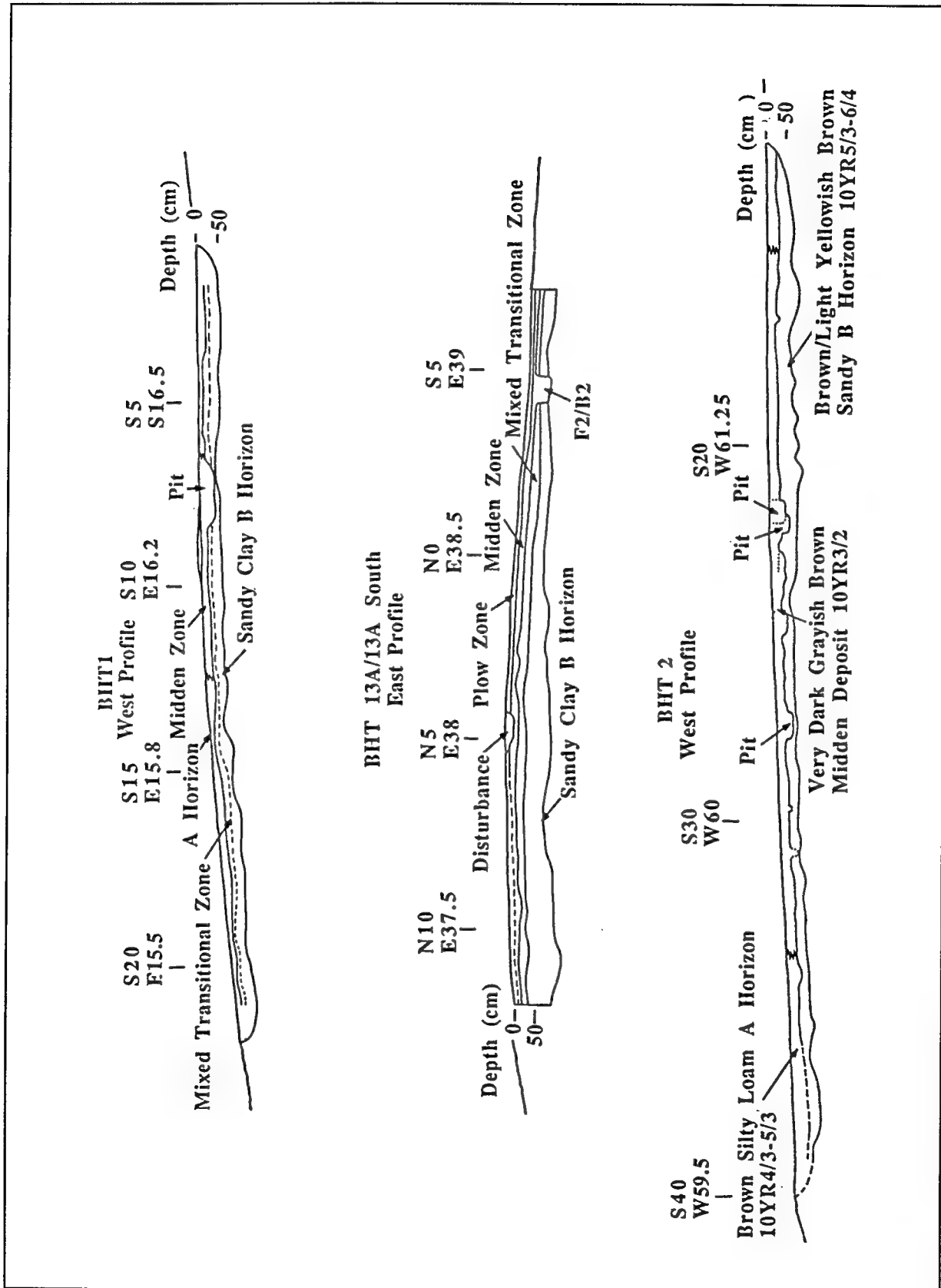


Figure 9-6. Profiles of backhoe trenches at 41HP78: the Lawson site; 1 (top), 2 (middle), and 4 (bottom).

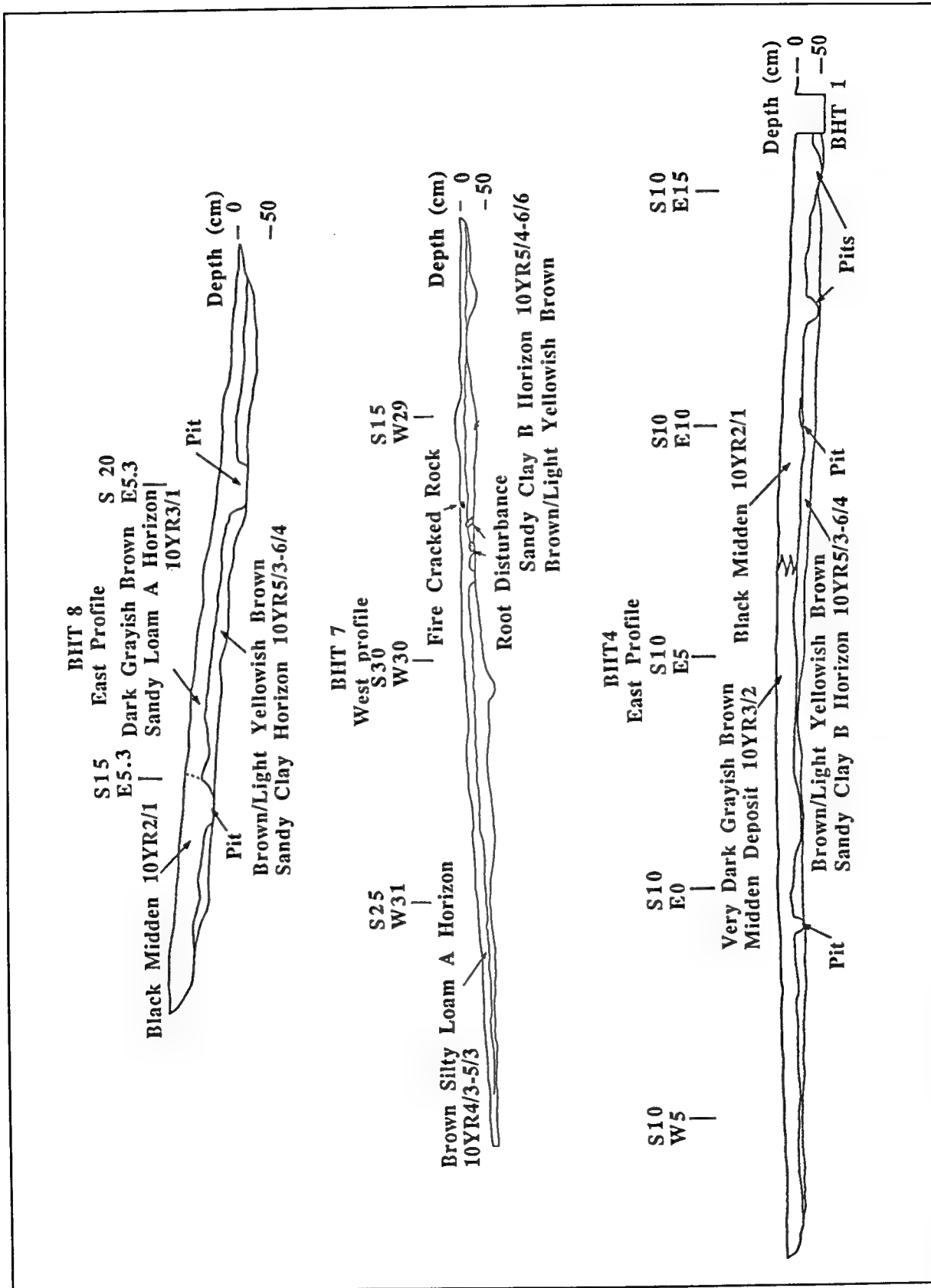


Figure 9-6 (cont.). Profiles of backhoe trenches at 41HP78: the Lawson site; 7 (top), 8 (middle), and 13A (bottom).

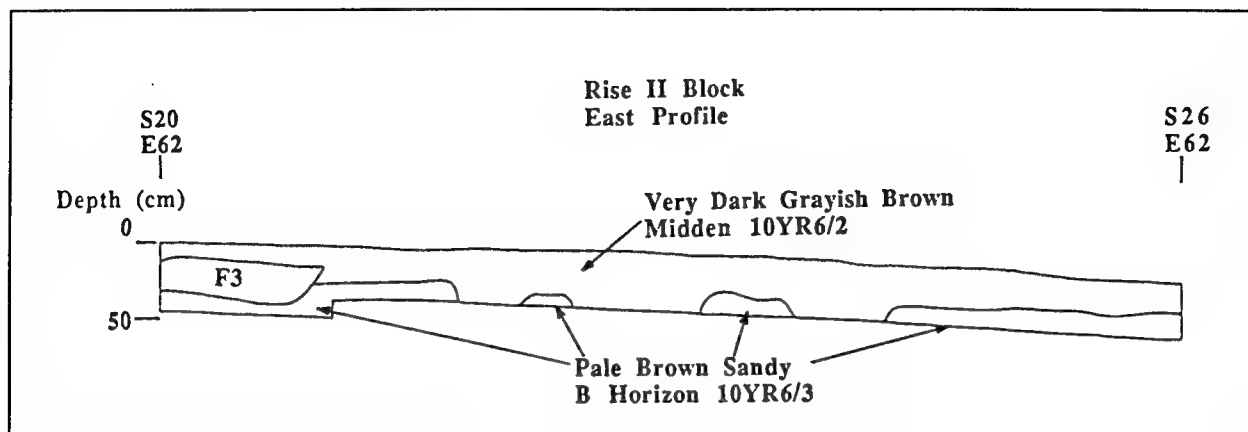


Figure 9-7. Profile of the Rise II Block.

ARTIFACT DESCRIPTIONS

This section presents the results of analyses performed on artifacts recovered during the 1987 intensive excavation phase at the Lawson site. All identifiable stone tools recovered from the site during both the testing and the intensive excavation phases are listed in Tables 9-2 and 9-3. Artifact proveniences are presented in Table 9-4. Dart point types and arrow point types are listed in Table 9-2, whereas other identifiable stone tools are listed in Table 9-3. Ceramic sherds have been analyzed (see Appendix B), and are briefly summarized after the discussion of lithic artifacts. A comprehensive analysis of these ceramics was subsequently conducted by Frank Winchell under Delivery Order 7, however, the results are reported here. Identifiable bone tools are described by Bonnie Yates and included in the tables of identifiable faunal elements in Appendix D.

Lithic Artifacts

Arrow Points

Agee-like (1 specimen, Figure 9-8a). This specimen exhibits deep U-shaped corner notches, recurved lateral edges, and a concave base. The blade is long (ca. 2.6 cm) and narrow (ca. 6 mm) like a drill; it is possible that this was a point which had been reworked into a drill. Provenience: 52.3. Material: quartzite.

Alba (1 specimen, Figure 9-8b). This specimen has a rectangular stem with a straight base and a short, wide triangular blade with prominent right-angled shoulders and fine serrations. Provenience: 52.2. Material: quartzite.

Alba-like (3 specimens, Figure 9-8c,d). These specimens have rectangular stems with straight bases, like classic Alba points. Their blades exhibit prominent right-angled shoulders and moderate barbs, but instead of the classic Alba blade with straight edges, several of these specimens have slightly recurved blades. They look more like Alba points which have been reworked. Coarse to fine serrations are present along the blades. Proveniences: 26.2, 26.3, 34.1. Material: quartzite (3).

Catahoula (4 specimens, Figure 9-8e,f). These specimens have concave blade edges, full barbs with squared ends, and expanding stems with convex bases. One specimen is serrated, and another is severely resharpened, such that the blade is narrower than the barbs. Proveniences: 58.2, 69.1, Feature 1 (Level 1), Feature 18. Material: quartzite (4).

Rockwall (1 specimen; Figure 9-8g). This specimen exhibits a triangular blade with U-shaped corner notches and sharp barbs that extend down almost as far as the bottom of the base. Provenience: 61.1. Material: quartzite.

Steiner (1 specimen; Figure 9-8h). This specimen has a deeply serrated triangular blade, a straight stem, and a slightly convex base. Provenience: 57.3. Material: quartzite.

Untyped, Contracting Stem (9 specimens; Figure 9-8i,j). These specimens are highly variable, but some are deeply serrated and looked like Steiner points except for their contracting stems. One specimen exhibits recurved barbs similar to those found on Friley points. Proveniences: 54.1, 55.3, 57.1 (2), 58.1, 62.3, 63.1, 71.1, 71.2. Material: quartzite (9).

TABLE 9-2

Projectile Point Types Identified At Site
41HP78 By Area

Point Type	Rise I	Rise II	Rise III	Total
<i>Arrow Points</i>				
Agee-like	—	1	—	1
Alba	—	1	—	1
Alba-like	—	2	1	3
Catahoula-like	3	1	—	4
Rockwall-like	—	1	—	1
Steiner	—	1	—	1
Untyped:				
Contracting Stem	2	7	—	9
Straight Stem	—	2	—	2
Expanding Stem	4	4	—	8
Fragments ¹	2	6	—	8
Subtotal	11	26	1	38
<i>Dart Points</i>				
Gary, Regular	18	6	—	24
Gary, Small	—	1	—	1
Untyped:				
Contracting Stem	9	1	—	10
Expanding Stem	1	—	—	1
Fragments ¹	6	2	1	9
Subtotal	34	10	1	45
Total	45	36	2	83

¹ Includes all tip, medial, and base fragments listed under Biface Fragments in Table 9-3, in addition to Indeterminate Fragments.

Untyped, Straight Stem (2 specimens, Figure 9-8k,l). These specimens are deeply serrated and look somewhat like Steiner points. Proveniences: 54.1, 55.2. Material: quartzite (2).

Untyped, Expanding Stem (8 specimens, Figure 9-8m,n). These specimens are somewhat variable, many

TABLE 9-3

Lithic Artifacts Identified At Site
41HP78 By Area¹

Point Type	Rise I	Rise II	Rise III
<i>Projectile Points¹</i>			
Arrows	9	20	1
Darts	27	9	—
<i>Finished Bifaces</i>			
Knife	3	1	—
Small Knife	3	—	—
Knife (thick)	2	1	—
Heavy Biface	1	—	—
Bifacial Scraper	3	—	—
<i>Aborted Biface</i>			
Early Stage	35	13	1
Late Stage	13	4	—
Arrow Point Preform	2	1	—
Dart Point Preform	1	—	—
<i>Biface Fragments</i>			
Arrow Tip	1	4	—
Arrow Medial	1	—	—
Arrow Base	1	—	—
Arrow Indeterminate	—	5	1
Dart Tip	1	—	1
Dart Base	6	3	—
Dart Indeterminate	2	—	—
Biface Resharpener Flake	1	—	—
Indeterminate Fragments	41	29	6
<i>Steeply Chipped Uniface</i>			
Endscraper	19	6	—
Sidescraper	8	3	2
<i>Marginally Modified Unifaces</i>			
Graver	2	—	—
Denticulate	4	3	1
Concave/Notch	33	19	2
Straight-Convex	237	65	6
Both	6	1	—
Fragmentary	5	1	—
Total	467	188	22

¹ Excluding fragments.

exhibit broad corner-notching which has created an expanded stem with a convex base and large barbs. Some

TABLE 9-4

Provenience For Certain Lithic Tool Categories Recovered At Site 41HP78

Unit Level (Specimens)	Unit Level (Specimens)	Unit Level (Specimens)	Unit Level (Specimens)	Unit Level (Specimens)	Unit Level (Specimens)	Unit Level (Specimens)	Unit Level (Specimens)	Unit Level (Specimens)	Unit Level
<i>Aborted Bifaces, Early Stage</i>									
24.1	26.2	46.1	52.1	54.3	55.2	56.2(2)	58.2	59.3	60.3
60.1	61.2	62.2(2)	63.1	65.1(2)	66.1	67.1	67.2	67.3	67.5
68.2	69.1	69.2	69.3	70.3	71.2(3)	72.1(3)	72.2(2)	72.4	—
72.5(2)	F1.1 ²	F11.	F15.(4)	F25. (4)					
<i>Biface Fragments</i>									
23.1(3)	23.2	24.1(4)	25.1(2)	30.1	45.1	50.1	50.2	51.1	51.2
52.2(3)	53.1(4)	54.2(2)	54.3	55.1(2)	57.2	58.1	58.2(2)	59.2	60.3
61.1(3)	66.2	67.2(3)	68.1	68.2	69.1	70.1(3)	70.2	71.1	—
71.2(2)	71.3	72.1	F1.2(2)	F15. (5)	F25. (5)				
<i>Unifaces with Concave Working Edges</i>									
23.1(3)	23.2	24.1(3)	24.2	50.1(4)	50.3	51.4	52.1	53.4	—
54.1(2)	55.3(2)	57.1	57.2(2)	58.2(2)	59.1	60.1	60.2(2)	60.3	61.1
63.2	66.1(2)	66.1	66.2	66.3	67.1	67.1	67.2(2)	69.1(3)	—
70.1(2)	71.1	71.2	71.3(2)	72.3	F9. (2)	F15. (2)	F25. (7)		
<i>Unifaces with Straight-Convex Working Edges</i>									
23.1(3)	23.2	24.1(3)	24.2	50.1(4)	50.3	51.4	52.1(2)	52.3(4)	—
53.1(2)	53.3(4)	53.4(2)	54.1(4)	54.2	55.2(2)	55.3(2)	55.3(2)	56.2	57.1
56.3(2)	57.2(2)	57.3	58.1	58.2(6)	59.1(3)	59.2(2)	60.1(6)	60.1(6)	60.2
60.3	61.3(3)	62.1	62.3	63.1(2)	63.3	66.1(16)	66.2(14)	66.3	—
67.1(8)	67.2(7)	67.3(3)	67.4(6)	67.5(2)	67.14	68.2(4)	68.3(2)	69.1(11)	—
69.2(3)	69.3(4)	70.1(13)	70.1(13)	70.2(7)	70.2(7)	70.3(4)	71.1(12)	71.2(8)	—
71.3(2)	72.1(3)	72.2(5)	72.3	72.4(7)	72.5	72.6(2)	72.10(2)	F1.1(8)	—
F1.2(6)	F1.3(4)	F1.2(8)	F9.	F15. (35)	F17. (2)	F25. (16)			

¹ Entries are read as Unit.Level(number of specimens other than 1).

² F#. indicates a specific Feature. Features have no level distinctions; however, the number of specimens is read similarly to Unit.Level(#).

have slightly expanding stems without any corner-notching and only slightly developed shoulders. Proveniences: 55.1, 58.2, 59.2, 60.2, 68.2, 69.2, Feature 1 (Levels 1 and 2). Material: quartzite (8).

Indeterminate Fragments (6 specimens). Proveniences: 51.1, 57.1, 58.2, 61.2, 62.1 (2). Material: quartzite (5).

Dart Points

Gary, Regular Variety (24 specimens; Figure 9-9). These specimens have triangular blades, contracting stems, and most have rounded bases. Some bases contract down to a point, rather than being rounded along the base. Blade morphology varies with shoulders ranging from weakly developed to prominent. Three specimens exhibit

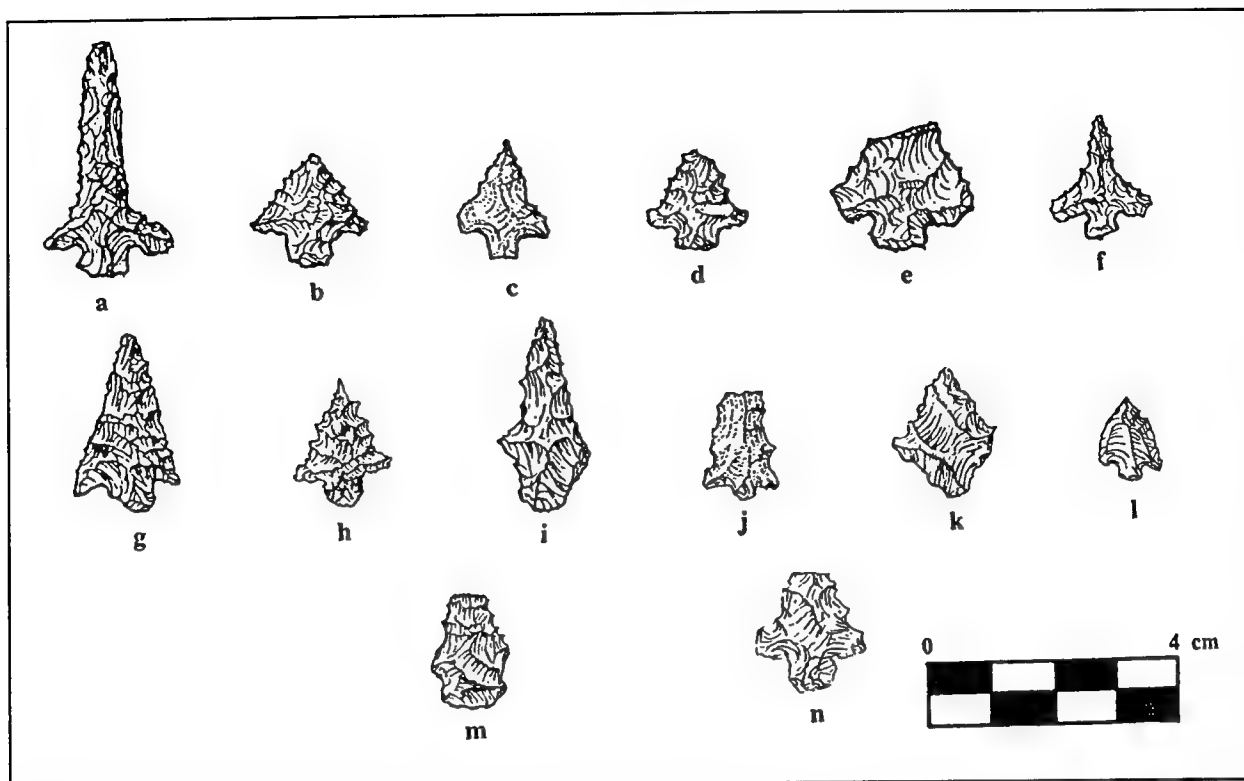


Figure 9-8. Arrow points from 41HP78: the Lawson site; (a) Agee-like, (b) Alba, (c-d) Alba-like, (e-f) Catahoula, (g) Rockwall, (h) Steiner, (i-j) Untyped contracting stem, (k-l) Untyped, Straight Stem, and (m-n) Untyped, expanding stem.

cortex along their bases, similar to Dawson points, but without any evidence of grinding on their stems. Proveniences: 52.1, 53.4, 54.3, 55.3, 59.3, 60.2, 65.1, 66.1 (2), 66.2, 67.3, 68.1, Feature 1 (Level 2), Feature 2 (2), Feature 9, Feature 15 (6), Feature 17, Feature 28. Materials: quartzite (23), siltstone (1).

Gary, Small Variety (1 specimen; Figure 9-9h). This specimen has a triangular blade, contracting stem, and rounded base like regular Gary points, but it is less than 3 cm in length. Provenience: 52.1. Material: quartzite.

Untyped, Contracting Stem (10 specimens). These vary dramatically in morphology. Some points are very similar to Gary points except that they exhibit straight, rather than contracting stems. Proveniences: 23.1 (2), 24.2, 26.2, 67.1, 67.2, 72.2, 69.1 (2), 70.3. Material: quartzite (10).

Untyped, Expanding Stem (1 specimen; Figure 9-9). This broken specimen has a blade with prominent shoulders and a slightly expanding, almost straight, stem with a slightly rounded base. Provenience: Feature 9. Material: quartzite.

Indeterminate Fragments (2 specimens). Proveniences: 65.1, 71.1. Material: quartzite (2).

Finished Bifaces

Knife (4 specimens). These specimens are thin bifaces which have at least one straight blade edge formed by fine, secondary retouch. The range of outline morphology was difficult to assess since most of these tools were broken. Proveniences: surface, 58.2, 66.1, 69.1. Material: quartzite (4).

Small Knife (3 specimens). These specimens are also thin bifaces which had at least one straight blade edge formed by fine, secondary retouch. However, they have very small blades and variable morphology, rather than the usual leaf-shaped outline characteristic of many knives. Proveniences: 70.2, 72.4, Feature 25. Materials: quartzite (2), novaculite (1).

Knife (Thick Blade) (3 specimens). These bifacially worked specimens have at least one straight blade edge which exhibits the kind of wear associated with finished tools used for cutting. However, they are much thicker

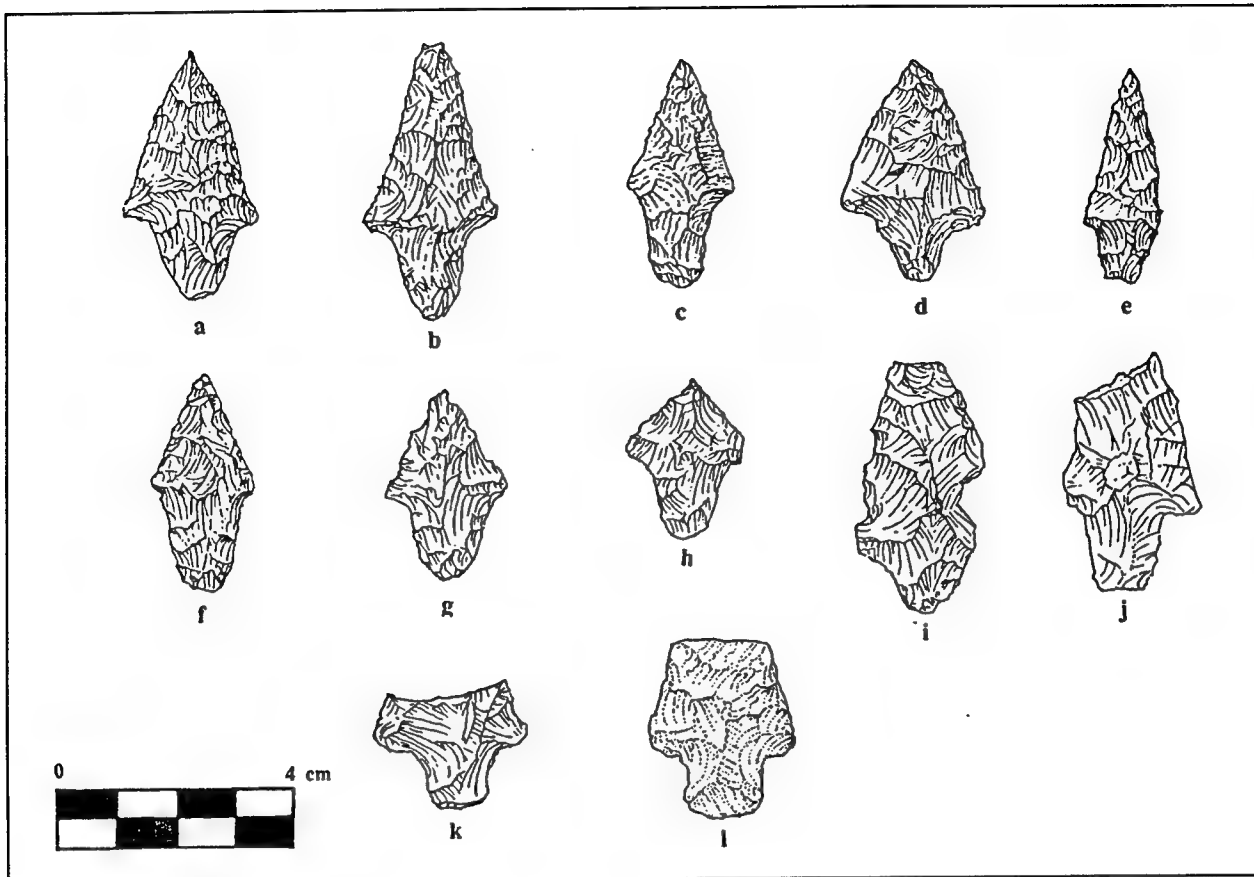


Figure 9-9. Dart points from 41HP78: the Lawson site; (a-d) Gary, (e) Untyped contracting stem, (f-l) Gary, (j) Kent, (k) Gary, and (l) Yarbrough.

than most bifaces classified as knives and do not necessarily exhibit the type of fine secondary retouch characteristic of most knives. Proveniences: 26.2, 60.1, Feature 25. Materials: quartzite (1), chert (1), silicified wood (1).

Harvey Biface (1 specimen). This specimen is a tabular piece of silicified wood which has been bifacially worked along one edge. It also exhibits marginal unifacial retouch along the end. Provenience: Feature 25. Material: silicified wood.

Bifacial Scraper (4 specimens). These specimens have steeply chipped bits similar to endscrapers, except that the flaking is bifacial, rather than unifacial. The working edges exhibit wear due to grinding or crushing, suggesting that they were used for scraping or chiseling. One specimen appears to have been a dart point which was reworked into a scraper. Proveniences: 42.1, 67.2, Feature 25 (2). Materials: quartzite (2), chert (1), silicified wood (1).

Aborted Bifaces

Early Stage (49 specimens). These are thick specimens with highly sinuous edges that appear to represent aborted attempts at the bifacial reduction of cobbles, or large, thick, primary flakes. Some specimens exhibit cortex. Proveniences: see Table 9-4. Materials: quartzite (45), chert (3), silicified wood (1).

Late Stage (17 specimens). These specimens have been bifacially thinned to a greater extent than the early stage bifaces, as evidenced by less sinuous edges. However, no evidence of fine secondary retouch is present. Proveniences: 52.1, 53.1, 60.3, 63.1, 65.1, 67.2, 68.1, 69.1 (2), 69.2 (2), 71.1, 72.1, 72.2, 72.4, Feature 25, Feature 28. Materials: quartzite (16), chert (1).

Arrow Point Preforms (3 specimens). These specimens are bifacially retouched flakes that are subtriangular in outline. They lack basal modification for hafting. Proveniences: 53.3, 70.1, 72.3. Material: quartzite (3).

Dart Point Preform (1 specimen). This specimen is bifacially retouched, but lacks fine secondary retouch. It exhibits minimal basal modification for hafting, but was not completed. Provenience: Feature 1 (Level 1). Material: quartzite.

Biface Fragments (Tables 9-3 and 9-4).

Possible Projectile Point Tip Fragments (7 specimens). These are the pointed distal fragments of projectile points. Two are dart point size and five are arrow point size. Proveniences: (Darts) 50.2, Feature 25; (Arrows) 25.2, 26.1, 26.2, 61.2, Feature 18. Materials: quartzite (7).

Possible Projectile Point Medial Fragment (1 specimen). This is the portion of an arrow point which had its tip and base broken off. Provenience: 23.1. Material: quartzite.

Possible Projectile Point Base Fragments (10 specimens). These are the proximal ends of stemmed projectile points. Nine are dart point size contracting stem bases and one is arrow point size. Proveniences: (Darts) 24.1 (2), 53.2, 53.3, 61.2, 65.1, 68.3, 69.2, and Feature 1 (Level 1); (Arrows) 69.1. Material: quartzite (10).

Biface Resharpening Flake (1 specimen). This specimen is a flake which was struck from a bifacial tool. The lipped end of the flake exhibits bifacial retouch which has been dulled from use. Provenience: 23.1. Material: quartzite.

Indeterminate Fragments (76 specimens). These specimens exhibit small areas of bifacial retouch, but can not be assigned to any of the preceding categories. Proveniences: see Table 9-6. Materials: quartzite (69), chert (6), Big Fork chert (2), silicified wood (1).

Steeply Chipped Unifaces

Endscraper (25 specimens). These specimens are thick flakes exhibiting steep unifacial retouch along the distal or proximal ends. Some specimens also exhibit retouch along their sides. Proveniences: 23.1 (2), 24.2, 26.2, 52.3, 53.1, 55.3, 56.2, 59.1, 66.2, 67.2, 67.4-Feature 28, 70.2, Feature 1 (Level 1) (2), Feature 15 (5), Feature 25 (4). Materials: quartzite (21), chert (2), silicified wood (2).

Sidescraper (13 specimens). These specimens are thick flakes which have steep unifacial retouch along one

or more edges. Proveniences: 24.3, 25.2, 50.2 (2), 52.2, 57.2, 65.1, 66.2, 68.1, 72.4, Feature 28, Feature 15, Feature 25 (2). Materials: quartzite (12), silicified wood (1).

Marginally Modified Unifaces

Graver (2 specimens). These are small thin flakes with pointed tips resulting from retouch. Proveniences: 71.2, 72.2. Material: quartzite (2).

Denticulate (8 specimens). These are flakes exhibiting retouch along one lateral edge such that three or more regularly spaced, pointed tips are present. Proveniences: 51.3, 53.3, 54.2, 59.1, 64.1, 72.4-Feature 28, Feature 1, Feature 15. Material: quartzite (8).

Concave Working Edge or Notch (54 specimens). Most of these specimens have been retouched such that one or more concave notches are present. Some specimens exhibit moderately concave working edges instead of notches. Proveniences: see Table 9-6. Materials: quartzite (50), chert (2), silicified wood (2).

Straight to Convex Working Edge (308 specimens). These specimens consist of flakes and broken flakes with minimal retouch flake scars along one edge. Regularly patterned flake scars are visible on most specimens, but many exhibited random flake scars in addition to small areas of regular retouch. Flakes in the latter group look similar to flakes which have sustained edge damage as a result of post-depositional trampling (cf. Gifford-Gonzalez et al. 1985:815). Proveniences: see Table 9-6. Materials: quartzite (285), chert (16), silicified wood (7).

Combination Tool (7 specimens). These specimens have been retouched such that one or more edges have concave notches and other edges have straight to convex working edges. Proveniences: 42.1, 64.1, 70.2 (2), 72.1, Feature 17, Feature 25. Material: quartzite: (7).

Fragmentary (5 specimens). These specimens are small broken fragments of flakes with very small areas of unifacial retouch visible which can not be assigned to any of the preceding categories. Proveniences: 56.3, 65.1 (2), Feature 25 (2). Material: quartzite (5).

Ceramics by Frank Winchell

A total of 317 sherds were recovered from 41HP78 during the last phase of excavation. All sherds were

examined, but only 157 were large enough to be analyzed. The remaining 160 sherds were either too small or eroded to be analyzed. This is a summary of the ceramics, which were analyzed under a subsequent task, Delivery Order 7.

Four primary paste groups were determined: coarse grog, small tempered grog, bone tempered, and grit paste. The coarse grog tempered consists of sherds which have coarse (0.5-1.0 mm) to very coarse (1.0-2.0 mm) pieces of crushed sherds in their pastes. Seventy-two percent of the analyzed sherds belonged to the coarse grog tempered group. The small grog tempered group (14.6%) consists of sherds which have fine (0.125-0.25 mm) to medium (0.25-0.5 mm) pieces of crushed sherds in their pastes. The bone tempered group (5.1%) consists of sherds (originally pots), which were primarily tempered with small bone fragments (very fine [0.062-0.125 mm] to coarse [0.5-1.0 mm] pieces). The grit paste group consists of sherds which have significant amounts of quartz inclusions (very fine to medium grains) with little bone or grog mixed in. This last paste group make up 8.3% of the analyzed sherds.

About 9.5% of the sherds are decorated. These decorations consist of incised and engraved lines, finger impressed and fine punctations, and red filming. Two sherds which have fine punctations accompanied with straight lines were typed as Pennington Punctated. This particular type has an estimated time range from A.D. 500-1000 and would be considered an incipient or early Caddo type (Suhm and Jelks 1962:121-122).

The remaining sherds are plain, either being smoothed or burnished on the exteriors and interiors. The grog tempered undecorated sherds could be either Williams Plain or Sanders Plain. The former type is associated with pre-Caddo occupations prior to A.D. 800-1000. The latter type is associated with early Caddo occupations after A.D. 800. Among the undecorated grog tempered sherds, there are a few thick, flat bottomed based sherds which are probably Williams Plain. Many of the undecorated body sherds were quite thick (greater than 10 mm in thickness), which also indicates that they may have been from Williams Plain vessels.

Very few of the sherds are large enough to assess the vessels shape or size. However, the base sherds showed that many of the vessels were flat bottomed although there were some round bottomed vessels represented. Most of the vessels seemed to have been bowls. A few bottle forms were noted.

Bone Artifacts

Analysis of bone tools was performed by Bonnie Yates of North Texas State University. This analysis is

presented in a listing of bone tools from the Lawson site in Appendix D.

OSTEOLOGICAL ANALYSIS

Barbara Burnett and Anna Harmon of the University of Arkansas analyzed the osteological remains from the Lawson site. A discussion of those human remains recovered at the Lawson site are found in Appendix C.

SUBSISTENCE REMAINS

Faunal Analysis

by Bonnie C. Yates

The quantitative details for the bones from this floodplain knoll site located south of the Sulphur River are found in Table D-9 in Appendix D. In general, the bone counts are reduced in proportion to the site size and area excavated relative to the Delta County bone-yielding sites to the north. The animals represented are therefore less diverse, with much fewer fish, birds, and mammals. Only turtle remains compare percentage-wise to the larger sites in this study (Table D-10). Table D-11 lists the animals identified from feature samples of which there were only three.

In Table D-9, the contrast between bone counts from Rise I and II is dramatic and not merely a reflection of the relative amounts of matrix processed. Rise I, although one-third smaller than Rise II, has only one-fourth the osteological material (by counts). The two rises differ in overall distribution and composition of faunas. For example, density is greatest in Level 1 of Rise I, but seems to be densest in Level 2 of the larger Rise II. Preservation is much worse in Rise I, which undoubtedly accounts for some of the disparity in bone density.

Likewise, the identifiability is affected, with 7.5 times more identified remains recorded from Rise II. Rise II has more taxa represented than Rise I per unit. Rise I has an average of 6.5 taxa per unit, whereas Rise II has an average of 12 taxa per unit (see Appendix D). Consistently higher frequencies of bone per unit were recorded for Rise II than for Rise I.

Butchering patterns are also distinct between the two rises. Axial elements of deer are 6 times greater in frequency in Rise II. Forequarter and hindquarter are almost 3 times more prevalent in Rise II than in Rise I. Cranial fragments (including teeth and antler fragments) are proportional to the area excavated in either rise. Rise I has an MNI of two deer, whereas Rise II has nine (based on right astragali), further suggesting that preservation factors account for most of the disparity in element

survival between the two rises. The astragalus is a sturdy, compact lower leg bone tending to preserve exceedingly well, and yet there are at least 4.5 times more individual deer from Rise II instead of an expected 3 times more.

The detection of butchering marks and burning patterns also suffer from poor preservation at Rise I. No skinning, dismembering, or filleting marks were recorded there. Rise II, conversely, yielded examples of all three kinds of processing marks among the deer remains. Furthermore, examples of butchering marks on turkey bones (Units 58 and 59 Level 2), raccoon (Unit 57 Level 3), and box turtle (Unit 63 Level 1) were recorded. Spirally fractured deer elements appear to have been made on fresh bone, presumably for marrow extraction. Charred breaks are noted on several (20 plus) elements (see discussion in Appendix D). Some of these elements also exhibit battering and flake removal along the spirally broken fractures, indicating deliberate force applied to extract marrow from deer long bones. Two deer astragali (condyles) appear to have been charred and ground down; they may have been used, while still articulated to a lower hind leg, to grind vegetable matter.

The burning patterns exhibited on turtle shell suggest a higher number of individuals may actually be represented in this assemblage. Even allowing for differential scorching patterns on roasted shells, each sample seems to have anatomically related fragments that, either because of size (i.e., age) or burning (i.e., calcination vs. scorch), must have come from different individuals. Shell fragments that have been burned to a shiny black appearance were noted here and from the Arnold site (Henderson 1978b). These may indicate roasting of turtles within the shell or use of the shells as vessels in which a high-fat substance was heated resulting in a carbonaceous residue baked onto the bones comprising the shell.

Macrobotanical Remains

by Cathy J. Crane

Samples from only nine features (Table 9-5) were analyzed, and one of these, Feature 25, did not contain any plant remains. This was the only sterile sample encountered among the samples collected from the four Cooper Lake sites, and overall, the preservation of archaeobotanical remains at this site appears to be poorer than at 41DT80 and 41DT124.

The eight features which had plant remains all contained hickory nutshell. Whereas, acorn shell occurred in only 50% of the features compared to over 70% at 41DT80 and 41DT124. Since the thin-walled acorn shell is less durable than hickory or pecan nutshell, the less

frequent occurrence at 41HP78 may be due to the generally poor preservation at the site.

No maize was found in the features, but squash rind was present in 50% of them. Tuber fragments were present in 100% of the samples. However, it should be noted that these percentages are probably skewed by the small number of samples from the site. For example, if more samples were unavailable, the percentage of features containing tuber remains may decrease significantly. Similarly, the lack of seeds from the site may be due, at least in part, to the small number of samples analyzed. For example, only 46.2% of the non-posthole features at 41DT80 and 47.6% at 41DT124 contained seeds. Poor preservation may also have played a role in accounting for the absence of seeds.

CULTURAL FEATURES

Cultural features recognized at the Lawson site included hearths, pits of various shapes and sizes, postholes, grave pits, a cremation, and burials. In addition, some very large pits were found which appeared to be nearly identical to features described as roasting pits in the Richland/Chambers Reservoir. Feature numbers were assigned to every category, although burials also received separate burial numbers. For instance, grave pits associated with burials received feature numbers, whereas the skeletal remains within the graves received burial numbers. In this section, brief descriptions of each feature are presented. To facilitate comparison, descriptive data for all features and burials are listed in Table 9-6, and feature contents are listed in Table 9-7.

Although flotation samples were collected from all of the excavated features, only nine samples were floated and processed and the remainder curated. Volume-corrected contents derived from flotation data are reported for Features 3, 5, 6, 11, 15, 18, 20, 22, and 25 in Table 9-8. Plan views of features are illustrated on maps of the Rise I Block, the Rise II Block, and Transects 1, 2, and 5 (Figures 9-10 through 9-14).

Hearths

The only features recorded at the Lawson site during the 1972 testing program were the hearths found in Units 3 and 9, at depths of 16 cm (6.3 in) and 20 cm (7.9 in) respectively. These hearths (Hearths 1 and 2) were described as accumulations of charcoal without concentrations of fire-cracked rock or indications of activity areas surrounding the hearths. As previously stated, Hearth 2 yielded a radiocarbon date of 2080 ± 60 B.P. (Tx-1961, uncorrected) or 172 ± 101 B.C. (Tx-1961,

TABLE 9-5
Distribution Of Plant Remains¹ At 41HP78

Feature	Wood Charcoal	Hickory Nutshell	Pecan Nutshell	Acorn Shell	Nutmeat	Squash Rind	Tuber	Rhizome	Unknown	Total
3	2.42	4.68	0.16	0.01	—	<0.01	0.03	—	0.03	<7.34
5	0.01	0.09	<0.01	—	—	—	0.01	—	—	<0.12
6	0.46	1.87	0.32	—	—	0.20	0.33	—	0.02	3.20
11	0.18	0.34	—	0.01	—	—	0.07	0.22	0.01	0.83
15	0.01	0.98	—	—	—	—	0.16	—	—	1.15
18	0.89	3.62	0.04	0.39	0.09	0.13	0.04	—	0.05	5.25
20	<0.01	0.20	—	<0.01	—	0.01	0.04	0.06	0.02	<0.35
22	0.35	0.68	0.01	—	—	—	0.01	—	—	1.05
Total	<4.33	12.46	<0.54	<0.42	0.09	<0.35	0.69	0.28	0.13	19.29

¹ All weight in grams.

corrected). The field drawings of these features were difficult to read; consequently, no profiles are illustrated here. Only one feature from the 1987 investigations, Feature 18, has been identified as a hearth.

Feature 18 was an oval, nearly circular, basin-shaped pit which was partially uncovered in Units 68 and 70 within the Rise I Block. It extended into the west walls of both units, so its precise dimensions are unknown. Within the block, it measured about 64 cm (25.2 in) east-west by 82 cm (32.3 in) north-south (Figure 9-10). The pit was visible in the west profile of the Rise I Block at a depth of 22 cm (8.7 in) below the original ground surface, but it was not clearly visible during excavation until 28 cm (11 in) below surface. The bottom of the pit was about 17 cm below this depth (45 cm [17.7 in] below surface). The pit profile exhibited relatively steep walls and a concave, gradually sloping, bottom (Figure 9-15). Feature fill was a black (10YR2/1) silty loam containing baked clay and a large quantity of charcoal (141 g), as well as bone. Tools included a Catahoula-like arrow point and a possible arrow point tip. All of the feature exposed within the Rise I Block was excavated, and nearly 40 liters were collected for flotation. The flotation sample contained a moderate density of lithic debris, fire-cracked rock, baked clay, and bone.

The high density of charcoal suggests that this feature had been a hearth, but the moderate density of baked clay and apparent lack of ash lenses does not support this

assessment. On the other hand, examination of the horizontal distribution of cultural materials suggests that Feature 18 may have been a hearth that was cleaned out and reused periodically, since baked clay and bone frequencies were consistently higher in the units adjacent to the feature than in the units encompassing the feature. This pattern would be expected for a hearth that had been cleaned out. Therefore, this feature is tentatively classified as a hearth.

Large Pits

Eighteen of the cultural features recorded at the Lawson site have been classified as large pits, (pits larger than 0.1 m²). Of the 18 large pits recorded, one fell within the Rise II Block (Feature 3), 12 were located in Transect 1 (Features 10, 11, 13, 14, 15, 16, 17, 19, 22, 23, 26, and 27 and 27A), and four were situated in Transect 5 (Features 5, 6, 9, and 21). Feature shape varied from nearly circular to oblong, and many were asymmetrical. For example, Features 5, 6, 9, 15, 17, and 22 had irregular outlines in plan view. It was impossible to assign a function to the majority of these features, since most appeared to have been filled with refuse after they were abandoned. Some contained evidence of burning, but did not look like the hearths recorded at other Cooper Lake sites. These features may have been roasting or baking pits.

TABLE 9-6

Metrical Data For Cultural Features Sampled At Site 41HP78

Feature	Length (cm)	Width (cm)	Depth Below Surface (cm)	Area (m ²)	Volume Floated and Processed (liters)	Munsell Color 10YR
<i>Hearths</i>						
1	20	7	16-30	N.A.	N.A.	N.A.
2	30	30	20-45	N.A.	N.A.	N.A.
18	82	>64	28-45	>0.44	40	2/1
<i>Large Pits</i>						
3	>100	>80	28-50	>0.35	20	3/2
5	109	98	20-37	0.73	30	3/2, 3/3
6	73	70	20-40	0.42	30	3/1
9	270	165	22-30	4.01	—	3/1, 3/2
10	58	40	30-43	0.35	—	3/2
11	62	25	30-48+	0.25	40	3/1, 3/2
13	150	119	30-40	0.92	—	3/1
14	45	15	20-48	0.16	—	3/2
15	305	165	30-88	3.12	—	3/1, 4/3
16	85	78	16-29	0.52	—	3/2
17	160	95	13-21	0.89	—	3/2, 5/3
19	58	35	30-44	0.17	—	3/1
21	180	160	17-62	2.20	—	3/2, 6/4, 5/2
22	80	20	30-41	0.24	20	3/1, 3/2
23	55	40	35-44	0.21	—	3/2
26	81	80	30-36	0.55	—	3/1, 5/3
27	85	40	30-67	0.25	—	3/2
27A	N.A.	65	30-82+	0.20	—	3/3
<i>Large Roasting Pits</i>						
25	400	>240	25-100+	>5.20	40	4/3, 6/1, 6/2, & 7/1
28	N.A.	>350	0-140+	N.A.	—	4/1, 4/2, 3/1, 3/2, & 3/3
29	650	N.A.	0-185	N.A.	—	3/2, 3/3, 6/4, 6/6
<i>Small Pits</i>						
4	22	18	30-42	—	—	3/2
7	29	27	20-42	0.05	—	2/1
8	31	27	20-35	0.08	—	3/1
12	35	20	5-19	0.08	—	3/2
<i>Postholes</i>						
1	22	21	20-32	0.04	—	2/1
2	24	22	20-34	0.04	—	2/1
3	25	22	20-33	0.05	—	2/1
4	23	21	20-34	0.03	—	2/1
5	20	20	20-34	0.03	—	2/1, 3/1

Table 9-6 (cont.)

Feature	Length (cm)	Width (cm)	Depth Below Surface (cm)	Area (m ²)	Volume Floated and Processed (liters)	Munsell Color 10YR
<i>Postholes (cont.)</i>						
6	25	20	20-33	0.06	—	2/1
7	30	20	20-41	0.09	—	2/1
8	20	19	20-34	0.04	—	3/1
9	24	20	20-34	0.05	—	4/4
10	22	19	20-37	0.04	—	3/2
<i>Grave Pits</i>						
1	100	80	0-88	0.30	—	3/1
2	72	50	0-59	>0.14	—	3/1
24	192	48	33-45	1.48	—	6/2, 6/3
<i>Cremation</i>						
20	66	48	12-27	0.19	20	3/2
<i>Burials</i>						
1	75	45	74-88	—	—	—
3	84	52	13-21	—	—	—
4	64	23	22-27	—	—	—
6	152	30	23-36	—	—	—

N.A.= Not Available

Feature 3 was observed in Unit 52, in the northeast corner of the Rise II Block, as an oval patch of very dark grayish brown (10YR3/2) silty loam against the yellowish brown (10YR6/3) silty loam beneath the midden. In plan view, the pit extended about 100 cm south of the north wall and 80 cm west of the east wall (Figure 9-11). It was observed in Unit 52 between the depths of 28 cm and 50 cm (19.7 in) below surface (Figure 9-16a). Ca. 20 liters of fill were recovered for flotation, while the remaining fill was water screened. High frequencies of baked clay, bone, and mussel shell were found, along with moderate to low frequencies of flakes and fire-cracked rock, and a single sherd. *Feature 3* was the only feature on the site to contain mussel shell, and it contained 198 g including flotation and water screen samples.

Feature 5 was a shallow, basin-shaped pit with a slightly undulating bottom which was found at the western end of Transect 5, immediately west of *Feature 6*, and about 1 m (3.28 ft) south of *Feature 9* (Figure 9-14). It was first observed at a depth of about 20 cm (7.9 in) below surface, where it measured 98 cm (38.6 in) north-south by 109 cm (42.9 in) east-west, and was 17 cm (6.7 in) deep below the scraped surface. The pit fill was a dark

grayish brown (10YR3/3) sandy loam with a shallower patch of very dark grayish brown (10YR3/2) sandy loam containing some 10YR3/3 mottling (Figure 9-16b). About 30 liters of matrix were recovered for flotation. Flotation yielded ten flakes, two pieces of fire-cracked rock, one gram of baked clay, and one gram of bone. Surprisingly, only a minute quantity of macrobotanical remains were recovered. One flake and one sherd were recovered from the water screened fill.

Feature 6 was a basin-shaped pit characterized by a roughly oval, somewhat irregularly shaped plan view, measuring 70 cm (27.6 in) east-west by 73 cm (28.7 in) north-south, which was found in Transect 5 (Figure 9-14). Depth of the scraped surface was about 20 cm (7.9 in) below the original ground surface, and the bottom of the pit was about 40 cm (15.7 in) below original ground surface. The pit profile exhibited gently sloping walls, and a possible posthole was present in the center of the pit which extended down below the bottom of the pit to a depth of 53 cm (20.9 in) below surface. This possible posthole had vertical walls down to 49 cm (19.3 in), where it began to taper down to a point (Figure 9-16c). *Feature* fill was a very dark gray (10YR3/1) sandy loam.

TABLE 9-7

Contents Of Cultural Features Sampled At Site 41HP78

Feature	Recovery Method	Projectile Point	Biface	Uniface	Lithic Debitage	Core	Ceramic	Baked ¹ Clay	Bone ¹	Shell ¹	Charcoal ¹	Burned ¹ Rock
1	WS	5	4	22	475	1	16	86	26	—	41	232
2	WS	2	—	8	73	1	1	1	2	—	—	27
3	WS	—	—	—	16	2	1	157	69	159	4	61
	F	—	—	—	9	—	—	8	12	39	10	10
5	WS	—	—	—	1	—	1	—	—	—	—	—
	F	—	—	—	10	—	—	1	1	—	—	2
6	WS	—	—	—	—	—	—	—	—	—	1	—
	F	—	—	—	61	—	—	1	—	—	1	9
7	WS	—	—	—	—	—	—	—	—	—	30	—
9	WS	2	—	3	63	—	—	2	—	—	—	23
11	WS	—	—	—	2	—	—	3	—	—	—	2
	F	—	—	—	67	—	—	—	6	—	2	38
15	WS	5	9	47	685	8	—	54	1	—	1	294
	F	1	—	—	90	—	—	—	1	—	1	37
17	WS	1	—	3	7	—	—	—	2	—	—	3
18	WS	1	—	—	29	—	—	13	1	—	141	5
	F	1	—	—	51	—	—	—	—	—	—	—
20	F	—	—	—	40	—	—	4	46	—	1	1
22	F	—	—	—	24	—	2	—	6	—	2	11
25	WS	1	16	29	165	10	—	129	—	—	—	592
	F	—	—	—	4	—	—	3	—	—	1	27
27	WS	—	1	21	66	2	15	—	—	—	—	122
28	WS ²	1	6	23	184	6	—	48	—	—	—	290
Total		20	37	156	2,122	30	36	510	173	198	236	1,786

¹ Baked clay, bone, shell, and charcoal are enumerated in grams; all other categories are enumerated in counts.

² Feature 28 includes materials from Units 67 and 72 below Level 3

KEY:

WS = Water Screen

F = Flotation

The east half of the feature was excavated; 25 liters were collected for flotation, and the remaining fill was water screened. Only nine pieces of fire-cracked rock, one gram of baked clay, and two grams of charcoal were recovered from the flotation and water screen samples combined.

Caddoan hearths often exhibit a posthole in the center as a result of the manner in which the houses were constructed. According to Swanton (1942), at the start of construction, a pole was set in the ground at the center of

the circular house which was used like a ladder or scaffold. Men worked from the top of this pole to bend the wall posts down and fasten their tops together, forming the classic beehive-shaped houses of the Caddo. The center post was removed after construction and a central hearth was dug in its place. Although the posthole in its center makes Feature 6 look morphologically similar to a Caddoan hearth, the relative lack of baked clay and charcoal, as well as the lack of identifiable patterning

TABLE 9-8

Volume Corrected¹ Contents Of Cultural Features Sampled At Site 41HP78

Feature	Volume Floated	Correction Factor	Tools	Lithic Debitage		Fire-cracked Rock		Ceramics	Baked Clay ²	Bone ²	Shell ²	Charcoal ²
				Large	Small	Large	Small					
3	20	5.0	—	30.0	15.0	45.0	5.0	—	40.0	—	195.0	50.0
5	30	3.3	—	26.4	6.6	6.6	—	—	3.3	3.3	—	—
6	30	3.3	—	125.4	75.9	29.7	—	—	3.3	—	—	3.3
11	40	2.5	—	90.0	77.5	80.0	15.0	—	—	15.0	—	10.0
15	40	2.5	2.5	137.5	100.0	72.5	20.0	—	—	7.5	—	2.5
18	40	2.5	2.5	27.5	100.0	35.0	85.0	—	24.0	20.3	—	—
20	20	5.0	—	140.0	60.0	5.0	—	—	20.0	230.0	—	10.0
22	10	10.0	—	180.0	80.0	80.0	30.0	20	—	60.0	—	20.0
25	40	2.5	—	2.5	7.5	47.5	20.0	—	6.3	—	—	2.5

¹ Volume corrected values are expressed as artifact/100 liters.² Baked clay, bone, shell, and charcoal are enumerated in grams; all other categories are enumerated in counts.

among the nearby postholes, argues against this interpretation. No firm conclusions can be drawn regarding its function.

Feature 9 was a rather large, shallow, asymmetrical pit which was observed at the western end of Transect 5 at a depth of about 22 cm (8.7 in) below surface. Features 5, 6, 7, and 8 were all in close proximity to this pit. The pit measured ca. 270 cm (106.3 in) along its long axis (southwest-northeast) by about 165 cm (64.9 in) northwest-southeast, although it was about 210 cm (82.7 in) across at its very widest point (Figure 9-14). It proved to be one of the shallowest features encountered, with the flat pit bottom extending down only about 8 cm (3.1 in) below the scraped surface (30 cm [11.8 in] below ground surface) (Figure 9-16d).

Human skeletal remains (Burial 4) were uncovered in the western quarter of the pit, but Feature 9 was not classified as a grave pit because interment of the individual was not the principal function of this pit. It appears that the burial was intrusive, or was included during the fill episode after the feature was no longer in use. Once the burial was removed, the northwest half of the pit was excavated. The pit fill was a very dark gray (10YR3/1) with some very dark grayish brown (10YR3/2) mottles. Ca. 18 liters of matrix were recovered for flotation, and were stored for future processing. The remaining fill was water screened through .25 in (6.4 mm) mesh. Two dart points were found in the fill: a Gary point,

which was recovered about 30 cm (11.8 in) southwest of the burial, and an untyped, expanding stem point. In addition, two marginally modified pieces with concave working edges were noted, as well as relatively high frequencies of baked clay and fire-cracked rock. The densities of baked clay and fire-cracked rock, as well as the large size of the pit, suggest that this feature may have been used initially for roasting. At some later point in time, the interment was placed within this pit.

Feature 10 was an oval, basin-shaped pit measuring about 40 cm (15.7 in) east-west by 58 cm (22.8 in) north-south which was found at the southern end of Transect 1 (see Figure 9-12). The scraped surface was about 30 cm (11.8 in) below the original ground surface, and the bottom of the pit was about 13 cm (5.1 in) below scraped surface. The pit profile revealed relatively steep walls and a gently sloping bottom. Feature fill was a very dark grayish brown (10YR3/2) sandy loam. The east half of the feature was excavated, and nearly 20 liters were collected for flotation.

Feature 11 was an oval pit measuring about 62 cm (24.4 in) east-west by 25 cm (9.8 in) north-south which was found near the northern end of Transect 1 (Figure 9-12). The pit profile revealed relatively steep walls and an undulating bottom which appeared to represent two overlapping pits rather than one (Figure 9-16f). The scraped surface was ca. 30 cm (11.8 in) below the original

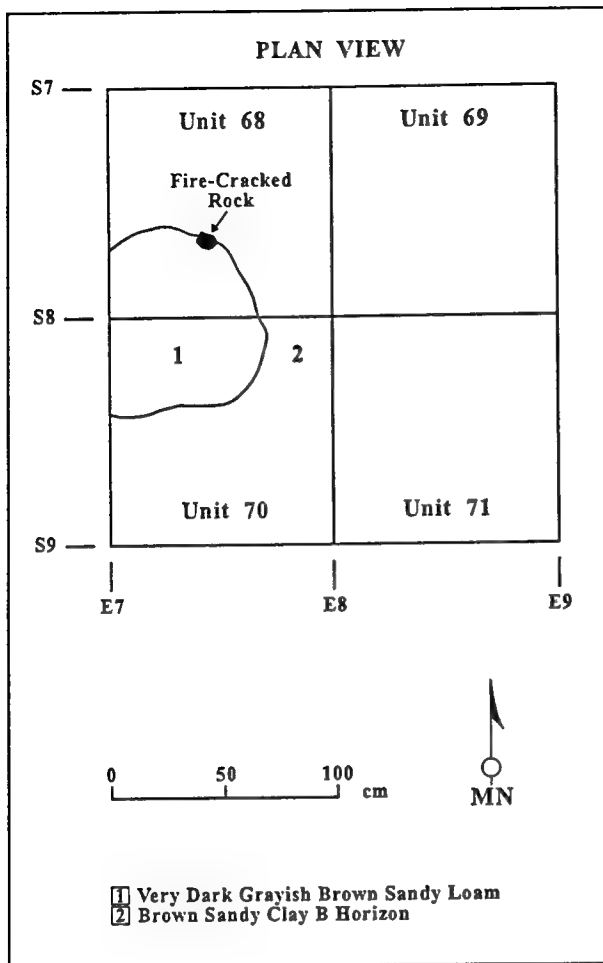


Figure 9-10. Plan view of the Rise I Block at 41HP78: the Lawson site, showing Feature 18.

ground surface, and the bottom of the pit was about 22 cm (8.7 in) below scraped surface on the east half of the feature. Feature fill was a very dark grayish brown (10YR3/2) tightly compacted loam.

On the west half, a disturbance comprised of very dark gray (10YR3/1), loosely compacted sandy loam penetrated the pit. The bottom of this disturbance was not reached before excavation ceased at 48 cm (18.9 in) below scraped surface. The great vertical extent and loose texture of this disturbance suggest that it was probably the result of a tap root.

The south half of the feature was removed and nearly 40 liters were collected for flotation. Relatively high frequencies of lithic debris, fire-cracked rock and bone were recovered from the float sample, suggesting that the pit may have been used as a hearth or roasting pit.

Feature 13 was an oval, shallow pit measuring ca. 150 cm (59 in) east-west by 119 cm (46.8 in) north-south

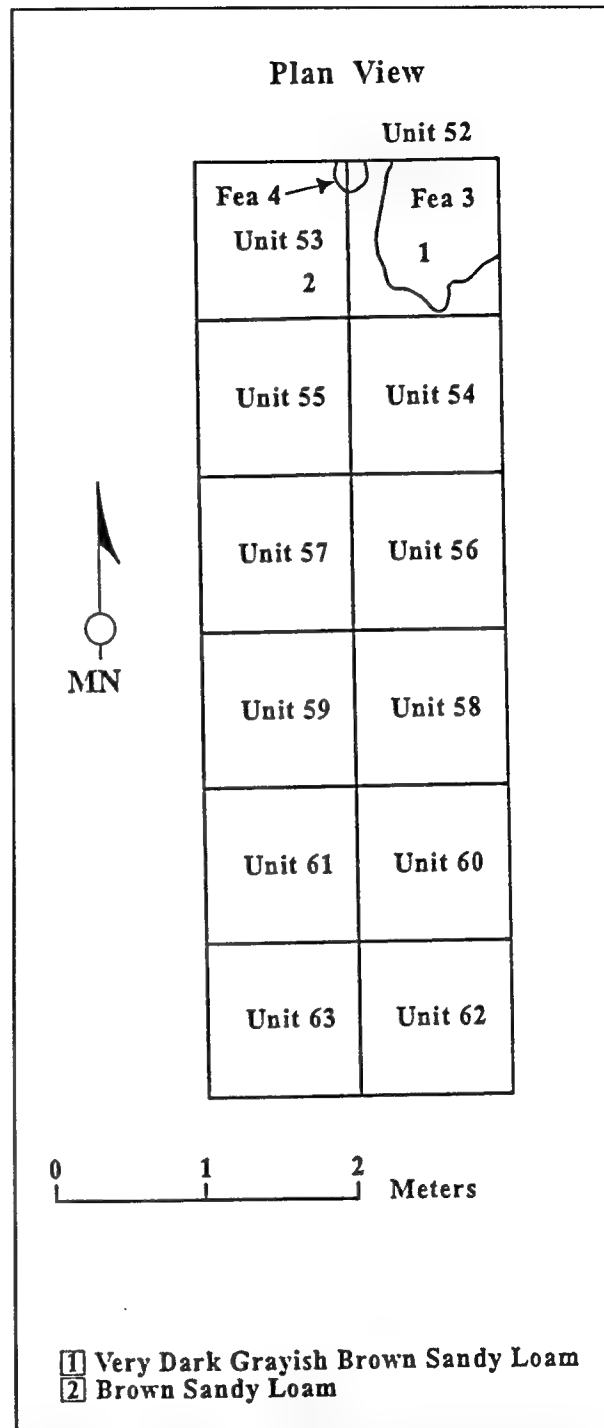


Figure 9-11. Plan view of the Rise II Block at 41HP78: the Lawson site, showing Features 3 and 4.

which was found near the center of Transect 1 (Figure 9-12). The scraped surface was only about 30 cm (11.8 in) below ground surface at this part of the transect. The pit profile revealed very gently sloping walls, with the bottom

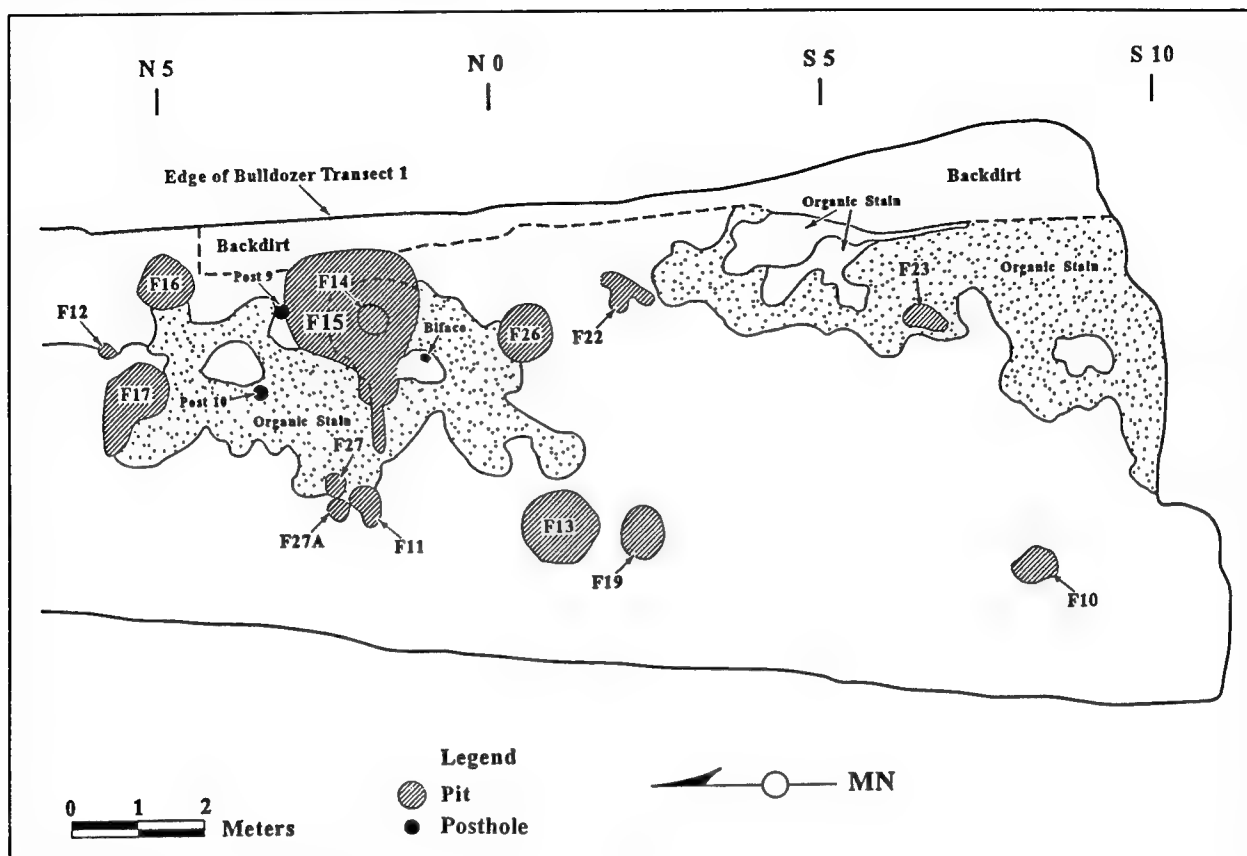


Figure 9-12. Plan view of the Transect 1 showing cultural features.

reaching only 10 cm (3.9 in) below the scraped surface (Figure 9-17a). The south half of the pit was excavated, and the feature fill was a very dark gray (10YR3/1) silty loam. This fill was recovered but not floated due to small sample size.

Feature 14 was an oval pit which was intrusive into Feature 15 near the north end of Transect 1. It was visible as an oval patch of very dark grayish brown (10YR3/2) soil within the very dark brown (10YR3/3) fill of Feature 15 which measured about 15 cm (5.9 in) northeast-southwest by 45 cm (17.7 in) northwest-southeast (Figure 9-12). The scraped surface was only about 28 cm (11 in) below ground surface along this part of the transect, and the bottom of the pit was 20 cm (7.9 in) below the scraped surface (Figure 9-17b). The profile revealed steep walls with a stepped appearance at the east end, where an 8 cm (3.1 in) wide shelf was present about 7 (2.8 in) cm below scraped surface. The southeastern half of the pit was recovered but not processed.

Feature 15 was a rather large, deep, oval to circular pit which was first observed at a depth of about 28 cm (11

in) below surface near the northern end of Transect 1. Defining the limits of this pit was quite challenging, since the color difference between the feature fill and the surrounding matrix was indistinct (10YR3/1 fill grading into a 10YR4/3 matrix). It was not until the north half of the pit had been removed that the limits were more clearly visible in the profile (Figure 9-12). There, the 10YR3/1 fill was observed as a pit with vertical walls and a flat bottom which measured 122 cm (48 in) east-west and extended down 55 cm (21.6 in) below scraped surface (88 cm [34.6 in] below ground surface). However, the entire area excavated as Feature 15 measured ca. 305 cm (120.1 in) east-west by about 165 cm (65 in) north-south (Figure 9-17c). The extended excavation was due to an additional factor complicating the delineation of feature boundaries. Essentially, the nature of the brown 10YR4/3 matrix surrounding Feature 15 (and also surrounding Features 11, 16, 17, 26, and 27) was not clearly understood when Feature 15 was being excavated.

At first, the brown 10YR4/3 matrix appeared to be an asymmetrically shaped area of organically stained B horizon soil, probably resulting from the leaching of the high organic matter in the A horizon on this portion of the

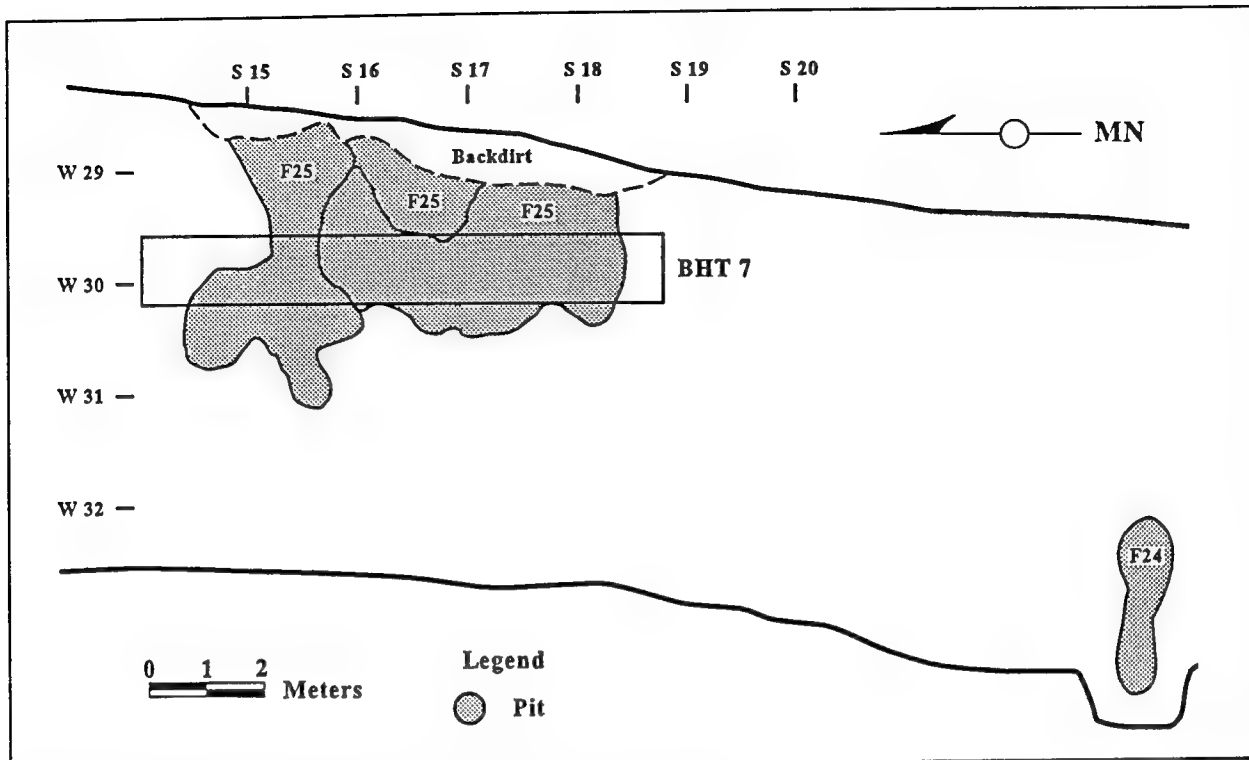


Figure 9-13. Plan view of the Transect 2 showing cultural features.

knoll. Later, as Feature 15 was being excavated, artifacts were observed down ca. 20 cm (7.9 in) into the 10YR4/3 matrix surrounding the pit. Below this depth, the soil became lighter, gradually changing from yellowish brown to yellow, like the soil observed along the scraped surface outside of the 10YR4/3 matrix. The 10YR4/3 matrix appeared to represent pit fill, so excavation was extended outward in all directions until the soil became lighter and artifact content dropped off.

In retrospect, the 10YR4/3 matrix may have represented the fill from a very large, shallow pit into which all of these other features were intrusive, rather than an organic stain on the B horizon resulting from leaching. Time constraints prevented excavation of a trench through this area, but subsequent excavation of Feature 27 supported this hypothesis, since artifacts were found in the 10YR4/3 matrix outside of the pit originally defined as Feature 27. When Feature 15 was being excavated, this possibility was not recognized, so the larger area was dug in an attempt to expose the entire feature. As a result, material from the relatively shallow 10YR4/3 matrix was included with material from the darker, deeper feature fill, and all were recorded as part of Feature 15. Feature 14 was intrusive into the east half of Feature 15, and Posthole 9 was intrusive into the northern edge of the expanded area included as part of Feature 15.

About 40 liters of fill were taken for flotation from the dark 10YR3/1 fill originally defined as Feature 15. This float data provided the only sample of artifacts confined to the deep portion of Feature 15, without any mixture from the shallower deposit surrounding the pit. Very high frequencies of lithic debris and fire-cracked rock were recovered from flotation, but surprisingly, the sample was devoid of nearly all other cultural materials. Only one gram of bone and one gram of charcoal were present in the float sample. Within the large sample water screened (ca. 1200 liters), a similar pattern was noted for lithic debris (570 flakes/m³) and fire-cracked rock (245 pieces/m³), and several identifiable tools were also found. Five Gary points manufactured from fine-grained (Ogallala) quartzite were recovered, as was a Gary point made from siltstone. Four aborted bifaces (early stage), five biface fragments, a sidescraper, five endscrapers, a denticulate, 35 marginally modified pieces with straight to convex edges, and two marginally modified pieces with concave edges were also found.

The relatively low quantities of baked clay and charcoal indicate that there was never a fire built within the pit, yet a high frequency of fire-cracked rock, was observed. This pattern suggests that stones were heated elsewhere and then placed within the pit, similar to the pattern observed for hypothesized roasting pits at Bird

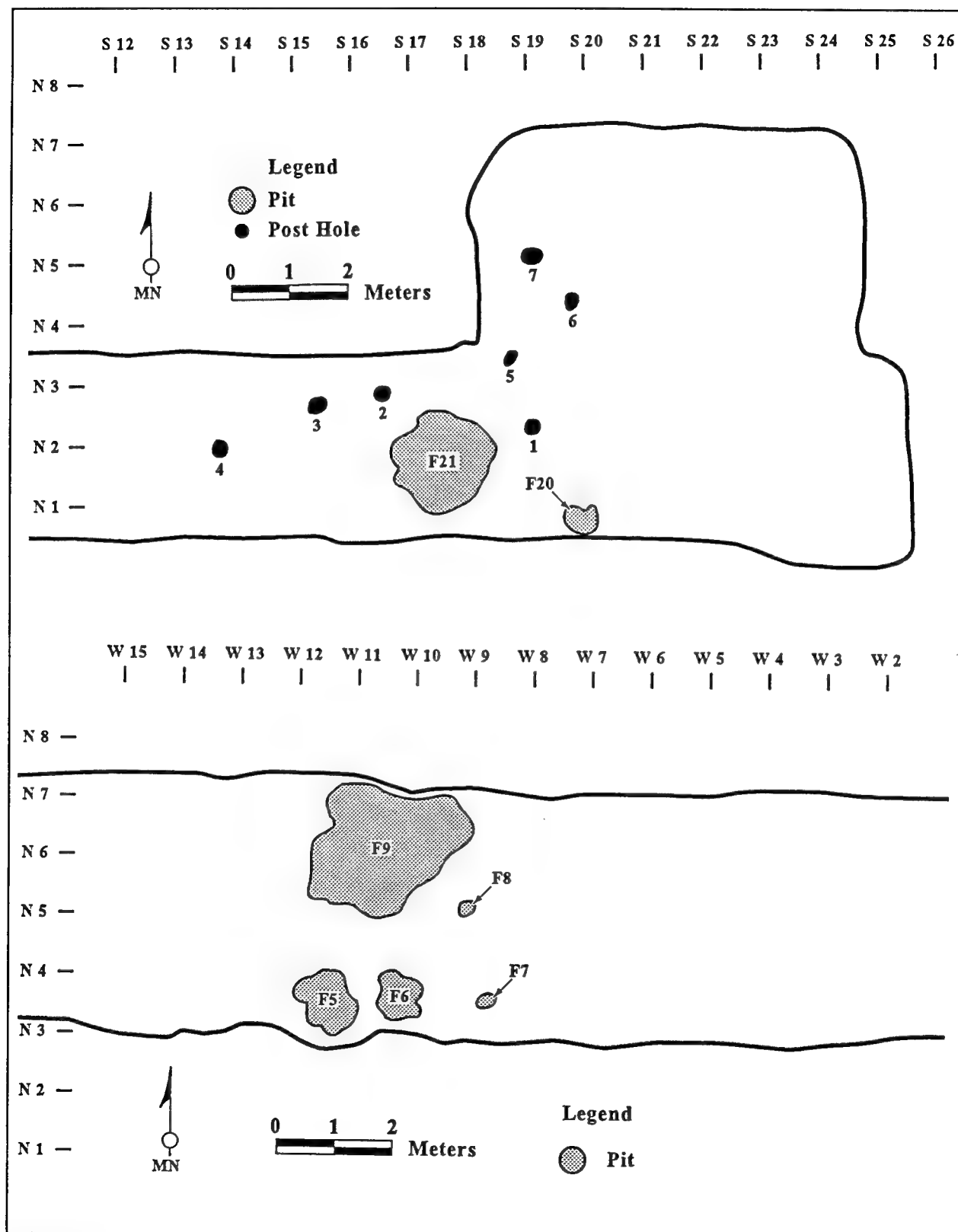


Figure 9-14. Plan view of Transect 5 showing postholes and pit features: east end of trench (top); and west end of trench (bottom).

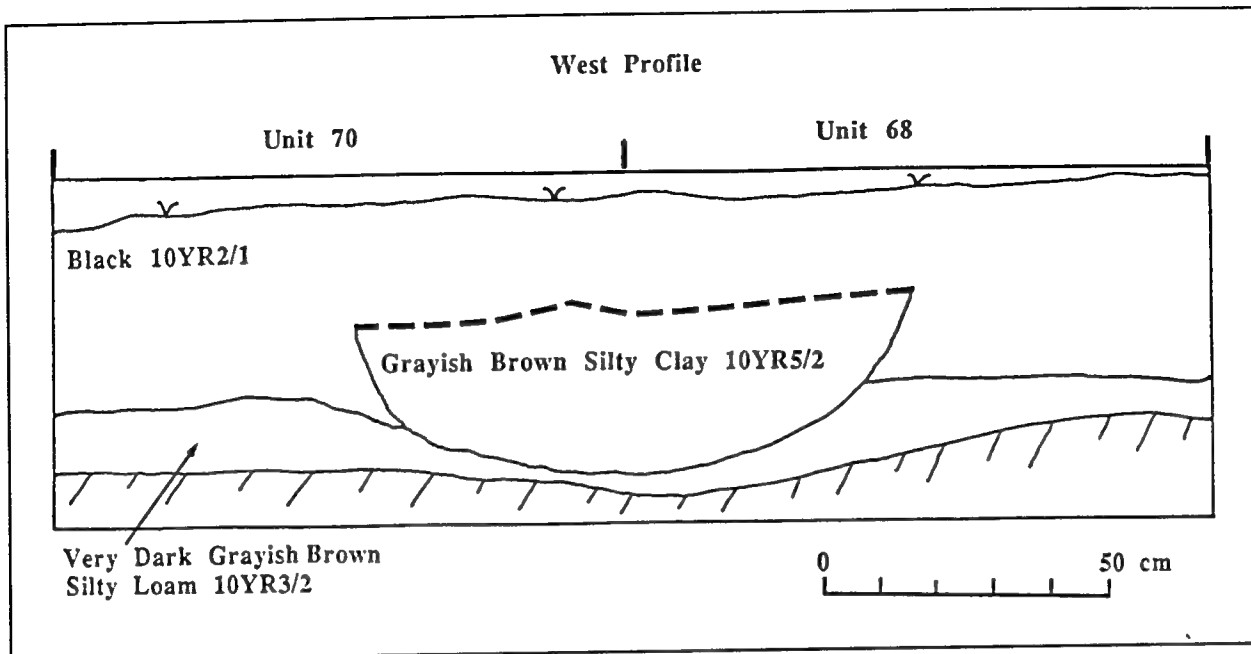


Figure 9-15. Profile of Units 68 and 70 along the west wall of the Rise I Block at 41HP78: the Lawson site, showing Feature 18.

Point Island (Martin and Bruseth 1987a:49-51) Another similarity to the Bird Point Island roasting pits is the relatively high scraper content of Feature 15. This relationship between these apparent roasting features and the use of scrapers is not clearly understood, but it was observed for several roasting pits in the Richland Creek vicinity.

At first glance, the relatively low density of macrobotanical remains lends little support to the interpretation of Feature 15 as a roasting pit, but upon closer inspection, it is apparent that it yielded the second highest frequency of tuber (*Psoralea* sp.) found at the site. It has been hypothesized that the roasting pits in the Richland Creek vicinity were used to process large quantities of this tuber for storage, since it was a relatively common element in those features along with nuts and acorns (Bruseth and Martin 1987d:281). If this hypothesis is correct, then Feature 15 may also have served as a processing area for this food item. The larger pits along Richland Creek were used on multiple occasions at different seasons of the year; whereas, Feature 15 contained very little nut remains and may have been used primarily during the spring and summer when tubers are thought to have been collected.

Feature 16 was an oval, nearly circular, basin-shaped pit measuring about 78 cm (30.7 in) east-west by 85 cm (33.5 in) north-south which was found at the northern end

of Transect 1 (Figure 9-12). The scraped surface was only 16 cm below the original ground surface, and the bottom of the pit was about 13 cm (5.1 in) below scraped surface (29 cm [11.4 in] below surface). The pit profile exhibited relatively steep walls and an undulating bottom with evidence of root disturbance (Figure 9-17d). Feature fill was a very dark grayish brown (10YR3/2) with some brown (10YR4/3) mottling. The south half of the feature was excavated, and nearly 40 liters were collected for flotation. However, the sample was stored for future examination, so its contents were not quantified.

Feature 17 was an oval, pear-shaped pit in plan view, with a shallow basin-shaped profile. It measured ca. 160 cm (63 in) east-west by 95 cm (37 in) north-south and was found at the northern end of Transect 1 and only 20 cm (7.9 in) west of Feature 12 (Figure 9-12). The scraped surface was only 13 cm (5.1 in) below the original ground surface, and the bottom of the pit was about 8 cm (3.1 in) below scraped surface (21 cm [8.3 in] below surface). The profile exhibited gently sloping walls and a stepped bottom which was deepest in the eastern half of the pit (Figure 9-17e). Feature fill was a very dark grayish brown (10YR3/2) with some light brown (10YR5/3) mottling. The south half of the feature was excavated, and nearly 20 liters were collected and stored for future flotation. A Gary dart point was observed in the profile. Other tools recovered from .25 in (6.4 mm) mesh included two

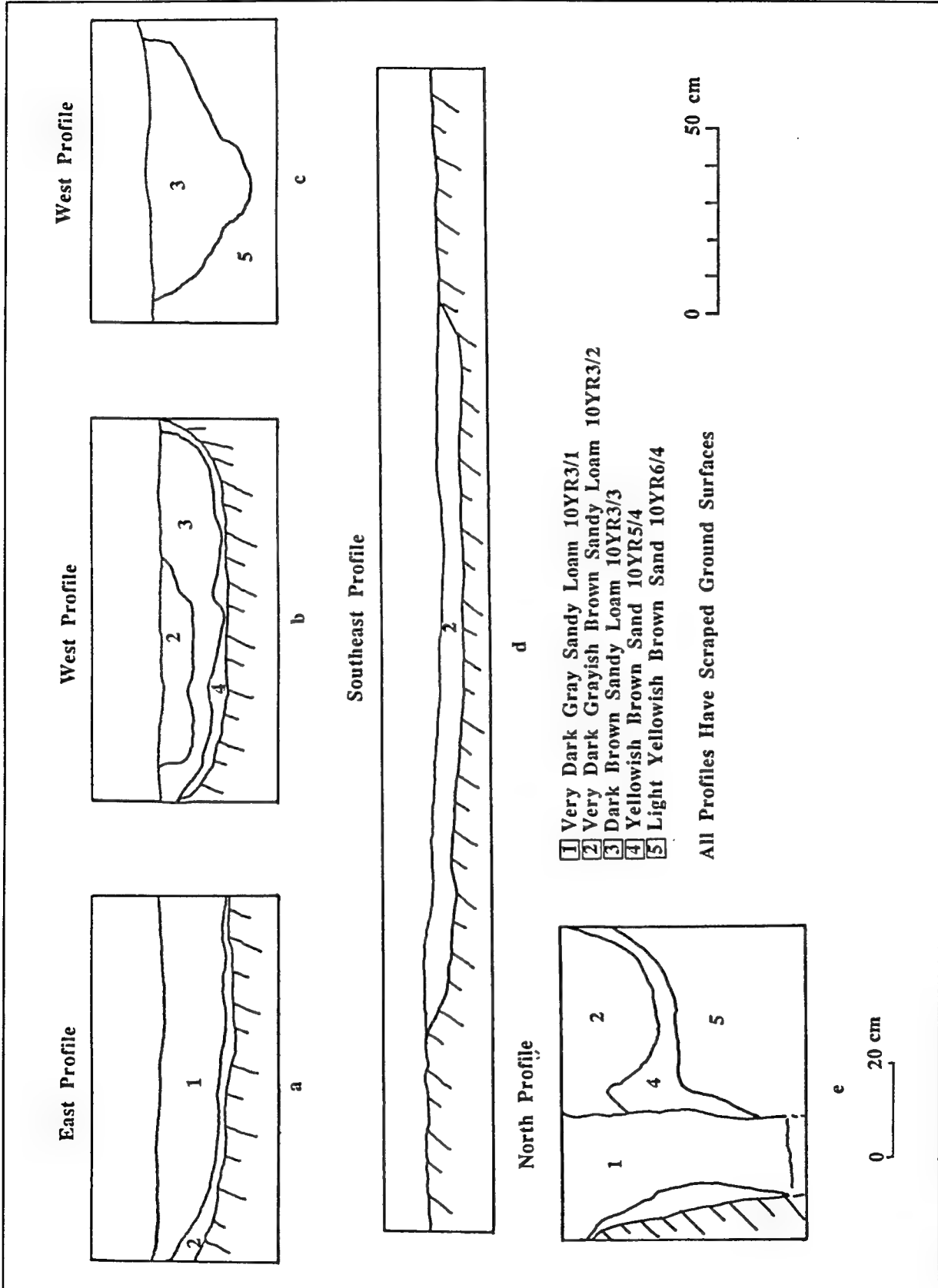


Figure 9-16. Profiles of large pits: (a) Feature 3; (b) Feature 5; (c) Feature 6; (d) Feature 9; and (e) Feature 11.

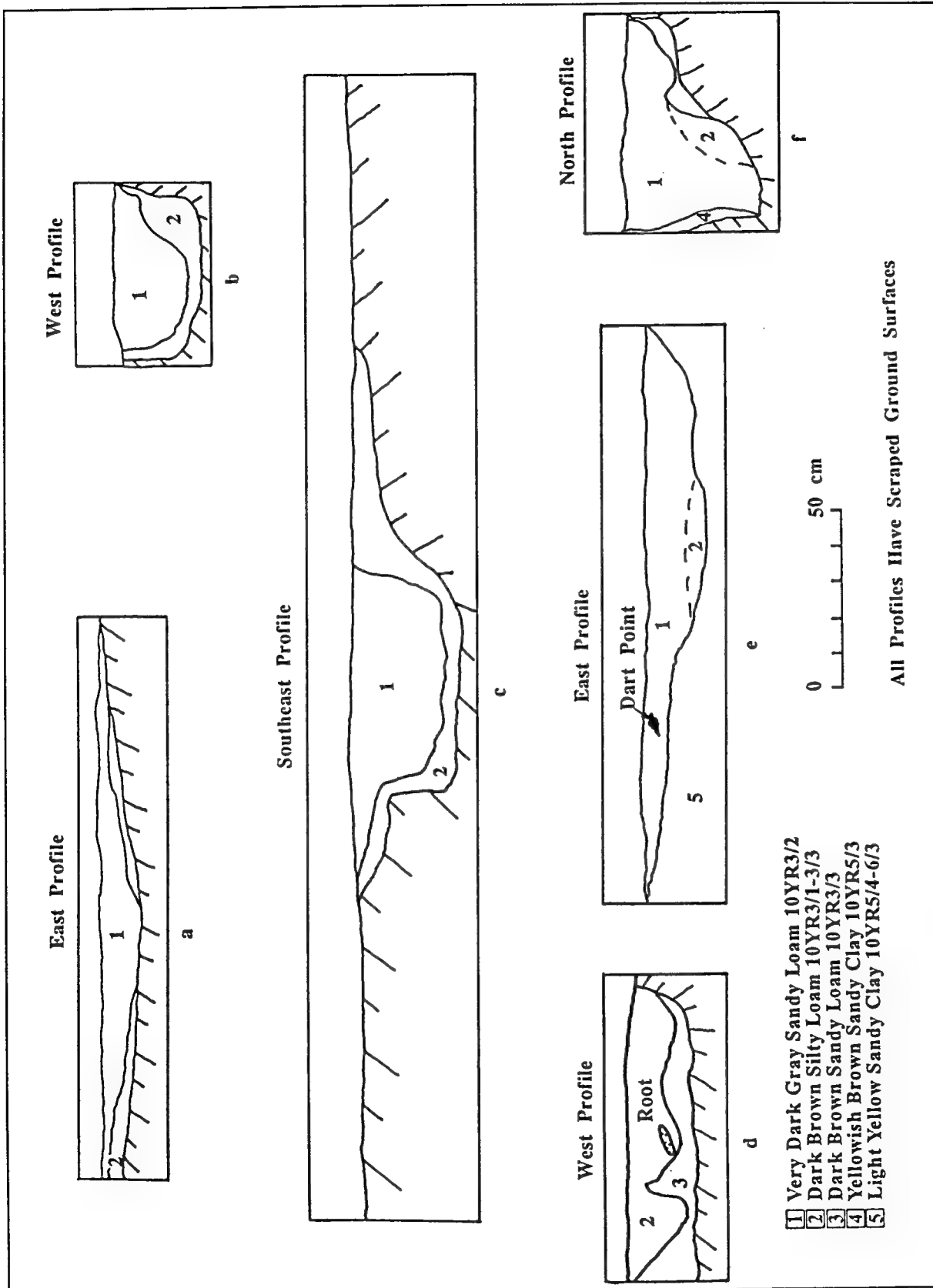


Figure 9-17. Profiles of large pits: (a) Feature 13; (b) Feature 14; (c) Feature 15; (d) Feature 16; (e) Feature 17; and (f) Feature 19.

marginally modified pieces with straight to convex working edges and one which had both a straight edge and a concave edge.

Feature 19 was an oval pit which looked very much like *Feature 11* in plan view and profile. It was found near the center of Transect 1 and measured ca. 58 cm (22.8 in) east-west by 35 cm (13.8 in) north-south (Figure 9-12). The pit profile revealed relatively steep walls and an undulating bottom which may have represented two overlapping pits rather than one (Figure 9-17f). The scraped surface was about 30 cm (11.8 in) below the original ground surface, and the bottom of the pit was about 14 cm (5.5 in) below scraped surface on the east half of the feature. The west half was penetrated by a posthole or root disturbance. Unlike *Feature 11*, the fill within this deeper portion of *Feature 19* had the same texture and color as the fill in the shallower eastern part. Since no texture differences were noted and the bottom of the deep half of the pit (ca. 67 cm [26.4 in] below surface) was within a reasonable range for postholes, it seems likely that the west half was the result of a posthole rather than a root. *Feature* fill in both portions of the pit was a very dark gray (10YR3/1) silty loam. The bottom of the west half was encountered 37 cm (14.6 in) below scraped surface. The pit outline was indistinct, with a gradual color gradation changing from mottled brown to yellowish brown between the fill and the subsoil. The south half of the feature was removed and stored.

Feature 21 was found at a depth of about 20 cm (7.9 in) at the eastern end of Transect 5 in the area encompassing Postholes 1-7 (Figure 9-14). It was first recognized as an oval patch of very dark gray (10YR3/1) silty loam measuring about 70 cm (27.6 in) northeast-southwest by 40 cm (15.7 in) northwest-southeast against a background of very dark grayish brown (10YR3/2) mottled with very dark gray (10YR3/1). As this feature was excavated, it became obvious in the profile that the dark stain was part of a much larger pit which measured ca. 180 cm (70.9 in) east-west by 160 cm (63 in) north-south (Figure 9-18a). The pit profile revealed that the very dark gray fill formed a shallow, gently sloping lens extending down ca. 16 cm (6.3 in) below scraped surface, with a vertical cylindrical extension down to 42 cm (16.5 in) in the lighter pit fill. The larger pit had a relatively steep wall along the west end and a gently sloping wall along the east end. *Feature* fill was a very dark grayish brown (10YR3/2) silty loam near the surface which gradually turned into a lighter mottled mixture of grayish brown and yellowish brown (10YR5/2 with 10YR6/4). Charcoal flecks were noted throughout the fill. The bottom was 44 cm (17.3 in) below the scraped surface,

and the scraped surface was only about 10 cm (3.9 in) below ground surface at this portion of the transect. The southwest portion of the pit was excavated and ca. 35 liters of matrix were recovered and stored.

Feature 22 was an irregularly shaped pit near the south end of Transect 1 (Figure 9-12). It was visible in plan view as an organic stain with a northeast-southwest orientation and a lobe extending toward the northwest. It measured about 80 cm (31.5 in) northeast-southwest by 20 cm (7.9 in) northwest-southeast, except for the lobe which extended about 60 cm (23.6 in) northwest-southeast (Figure 9-18b). The scraped surface was about 30 cm (11.8 in) below ground surface along this part of the transect, and the bottom of the pit was 11 cm (4.3 in) below the scraped surface. The profile revealed gently sloping walls and a basin-shaped bottom. The fill was a very dark gray (10YR3/1) soil mixed with a very dark grayish brown (10YR3/2). The southeast half of the pit was excavated, and ca. 10 liters of matrix were floated. This pit contained high densities of lithic debris, fire-cracked rock, bone, and charcoal. Except for the fact that no baked clay was recovered, the contents are typical of that of a hearth.

Feature 23 was an indistinct, roughly oval shaped pit near the south end of Transect 1 (Figure 9-12). It was visible in plan view as a very dark grayish brown (10YR3/2) organic stain within a large area of dark grayish brown (10YR3/3) silty loam. It measured ca. 55 cm (21.6 in) north-south by 40 cm (15.7 in) east-west. The scraped surface was about 35 cm (13.8 in) below ground surface along this part of the transect, and the bottom of the pit was 9 cm (3.5 in) below the scraped surface (Figure 9-18c). The profile revealed gently sloping walls and a somewhat undulating bottom. The southeast half of the pit was excavated, and ca. 15 liters of matrix were recovered and stored. This feature was curious in that no artifacts were observed during excavation.

Feature 26 was a shallow, nearly circular, basin-shaped pit measuring about 81 cm (31.9 in) east-west by 80 cm (31.5 in) north-south which was found near the middle of Transect 1 (Figure 9-12). The scraped surface was about 30 cm (11.8 in) below the original ground surface, and the bottom of the pit was only 6 cm (2.4 in) below scraped surface (36 cm [14.2 in] below surface). The pit profile exhibited gently sloping walls and an undulating bottom (Figure 9-18d). *Feature* fill was a very dark gray (10YR3/1) with some light brown (10YR5/3) mottling. The south half of the feature was excavated, and nearly 20 liters of soil were collected and stored.

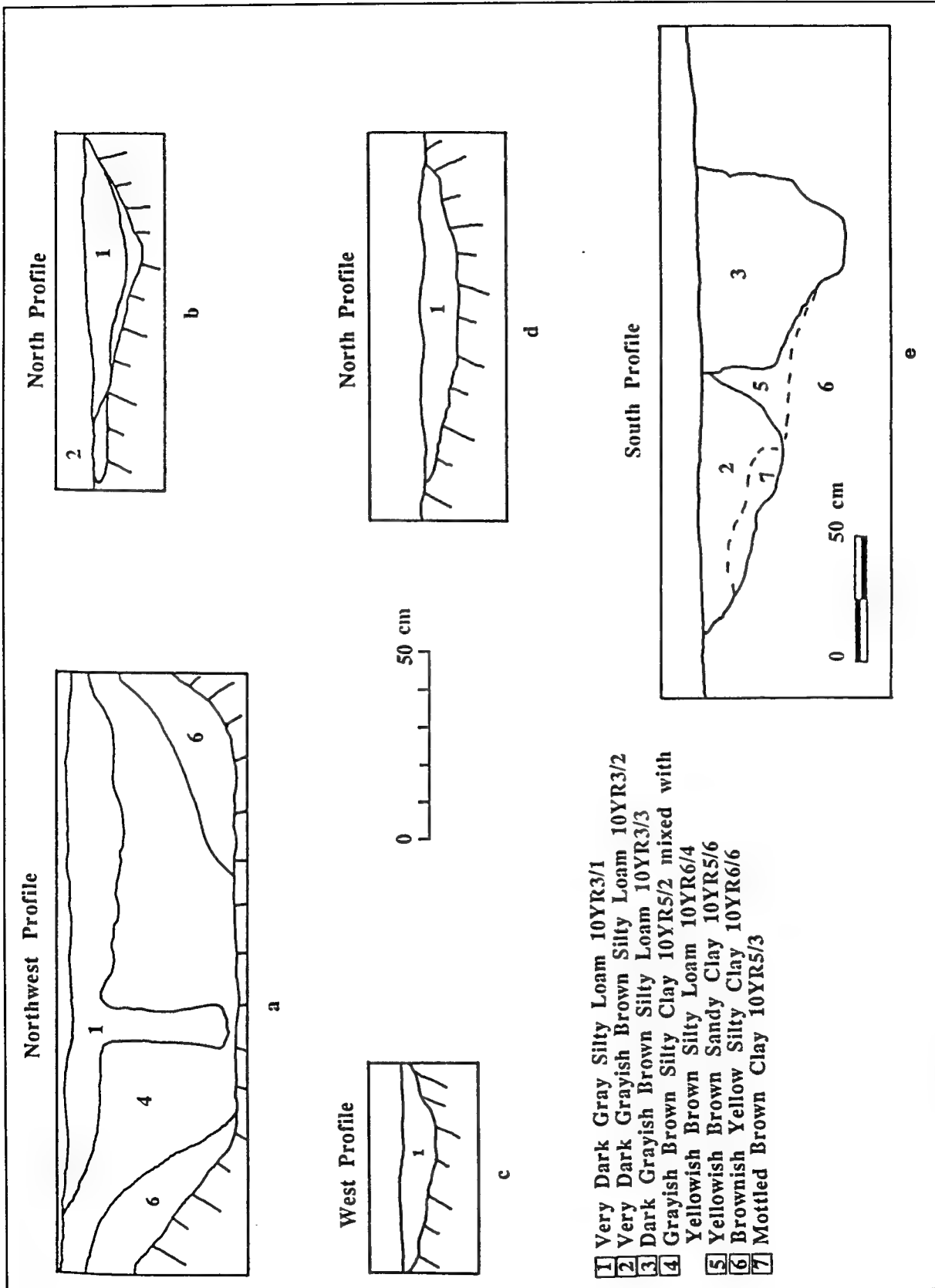


Figure 9-18. Profiles of large pits: (a) Feature 21; (b) Feature 22; (c) Feature 23; (d) Feature 26; and (e) Features 27 and 27A.

Feature 27 was found along the western edge of the large area of brown (10YR4/3) matrix in Transect 1 that may have represented the fill from a very large, asymmetrical, shallow pit (see *Feature 15* discussion). *Feature 27* was originally defined as a very dark grayish brown stain (10YR3/2) measuring ca. 85 cm (33.5 in) east-west by 40 cm (15.7 in) north-south (Figure 9-12). Once excavation was begun, artifacts were also found in the 10YR3/3 and 4/3 matrix outside of this darker soil, so a narrow trench 150 cm (59 in) by 30 cm (11.8 in) was dug in an east-west fashion to redefine the feature boundaries. The soil outside of the darker (10YR3/2) matrix was kept separate from the main fill and was labeled as *Feature 27A*.

The trench profile revealed two separate pits: the darker one originally defined as *Feature 27*, and a deeper pit immediately to the west, measuring 65 cm (25.6 in) east-west, which had lighter colored (10YR3/3) fill (*Feature 27A*). *Feature 27* exhibited gently sloping walls and a somewhat undulating bottom about 37 cm (14.6 in) below scraped surface, whereas *27A* had steep, nearly vertical walls and the bottom was not found when excavation ceased 52 cm (20.5 in) below scraped surface (Figure 9-18e). *Feature 27A* had a tree root extending down vertically through the center of the pit, and it is possible that the entire pit was actually the result of tree root disturbance. About 40 liters of fill were collected from the dark 10YR3/2 fill originally defined as *Feature 27* and stored for future flotation.

Large Roasting Pits

Three very large pits (greater than 7.5 m² [24.6 ft²]) were recorded on Rise I. The feature contents seemed to be quite similar to those of roasting pits excavated in the Richland/Chambers Reservoir (Martin 1987:252). The Lawson site is the only site recorded at Cooper Lake thus far that contains large features as deep as these. Although *Feature 5* at the Doctors Creek site approached the size of these three features, it was only 57 cm (22.4 in) deep, whereas these features ranged from at least 75 cm (29.5 in) for *Feature 25*, to more than 140 cm (55.1 in) below surface for *Feature 28*.

The occurrence of roasting features has been viewed as an adaptation to the concentration of food resources requiring processing for storage. People gathered acorns, nuts, and *Psoralea* tubers in great abundance as soon as they became available, and roasted them in the large pits in order to prevent insect infestation or spoilage due to bacteria and fungus (Bruseeth et al. 1987:250). It has been hypothesized that roasting pit size changed over time due to changes in population, territorial area, and group mobility (Bruseeth et al. 1987:252-255). The largest pits

were dug ca. 170 B.C.-A.D. 200 during the Transitional Archaic period (roughly equivalent to the first quarter of the Early Ceramic period in East Texas), presumably during periods of macroband aggregation. Pits dating to later periods (A.D. 700-900, and A.D. 1300-1650) were smaller in size, though still quite large, and were found on sites exhibiting small middens and small groups of postholes which did not form discernable house patterns. They were also found in association with houses in a sedentary or semisedentary hamlet, dating A.D. 1000-1200.

The size of *Features 25*, *28*, and *29* are within the range exhibited by features associated with the A.D. 1000-1200 hamlet at the Bird Point Island site in the Richland/Chambers Reservoir. However, the relative lack of ceramics and arrow points in *Features 25* and *28* (the only features from which artifact samples are available) suggests that they may date to the Archaic or Early Ceramic periods. In addition, *Feature 25* contained a biface made from novaculite, a material widely traded during the Archaic period and more abundant at the Lawson site than at other Cooper Lake sites with later components. It is quite likely that all three of these pits date from the Archaic or early portion of the Early Ceramic period.

Feature 25 was a very large pit, first recognized at a depth of 25-30 cm (9.8-11.8 in) below surface in Transect 2, about 4 m (13.1 ft) northeast of *Feature 24* (Burial 6). Burial 6 appeared as an asymmetrical-shaped light organic stain measuring at least 240 cm (94.5 in) east-west by 400 cm (157.5 in) north-south (Figure 9-13). Maximum east-west dimensions could not be measured directly because part of the feature extended into the east wall of Transect 2. However, the feature was not observed in Trench 7, less than 1 m (3.28 ft) to the east, so the east-west dimensions must have been less than 300 cm (118.1 in). The pit outline encompassed an area of about 7.6 m² (24.9 ft²). The pit fill was a brown (10YR4/3) to light grayish brown (10YR6/2) sandy loam down to about 30 cm (11.8 in), where the texture changed to sandy clay and the color became gray (10YR6/1). The matrix gradually became lighter with depth, changing to a light gray (10YR7/1), but there was no definite color or texture boundary marking the bottom of the feature.

A hand excavated north-south trench was begun along the W30 line to obtain a sample of artifacts and to expose the profile. The trench was about 80 cm (31.5 in) long and was dug down 62 cm (24.4 in) below scraped surface. Most of the cultural material was confined to the upper 50 cm (19.7 in), but some material was still present at the bottom of the trench. Since the pit turned out to be deeper than estimated, and the silty clay matrix had

become extremely time-consuming to dig, a backhoe trench (BHT 10) about 250 cm (98.4 in) long was dug in the area where the hand excavated trench was started. About 40 liters of fill were recovered for flotation, while the remaining fill (ca. 660 liters) was water screened through .25 in (6.4 mm) mesh.

Numerous tools were recovered from the water screened sample: a possible dart tip, two knives (one made from novaculite), a Harvey biface, two bifacial scrapers, four aborted bifaces (early stage), one aborted biface (late stage), five biface fragments, four endscrapers, two sidescrapers, 15 marginally modified pieces with straight to convex working edges, seven marginally modified pieces with concave working edges, and one marginally modified piece with both concave and convex edges. A large quantity of fire-cracked rock was recovered from the water screened sample, with a density of ca. 897 pieces per m³. Bone, shell, and charcoal were virtually absent from both the water screen and float samples.

The west profile revealed numerous fragments of fire-cracked rock of various sizes extending down to a depth of 75 cm (29.5 in) below scraped surface. In addition, a dense concentration of reddish yellow (7.5YR6/8) to brownish yellow (10YR6/8) mottling, forming a band 10-15 cm (3.9-5.9 in) thick, was observed immediately above the deepest point in which rocks were observed. This phenomenon was observed near the bottom of some large pits at the Bird Point Island site in the Richland/Chambers Reservoir (Martin and Bruseth 1987c:82). It was attributed by the regional soil scientist (Ed Janak) to the properties of water percolation: dissolved iron from the upper portion of the fill was carried toward the bottom of the pit by water percolation and was then concentrated near the bottom of the feature as the progress of the water was impeded by the undisturbed matrix beneath the feature. Given this information, it seems likely that the bottom of Feature 25 was distinguished by the limits of fire-cracked rock and iron accumulation.

The large size of the feature and its irregular shape in plan view could have been caused by a series of smaller pits having been excavated in the same area over an extended period of time, resulting in the impression that a single large pit had been dug. Studies conducted on the contents and soil characteristics of pits with very similar plan views and profiles found in the Richland/Chambers Reservoir suggested that the pits had been subjected to episodes of reuse (Martin and Bruseth 1987a:51). Magnetometer studies also supported this interpretation, showing these pits as anomalies with multiple localized magnetic peaks and polarities shifted away from north, unusual characteristics for *in situ* features utilized during

a single episode (Huggins et al. 1987:150). Feature 25 fell outside of the area of the magnetic survey, so there are no magnetic data which can be compared with the Richland Creek data. However, based on similarities in pit morphology and in flotation data, Feature 25 can be classified as a roasting pit similar to those identified along Richland Creek.

Feature 28 was another very large pit, similar in profile to Feature 25 (Figure 9-19), that was found on top of Rise I. It had shown up during the magnetic survey as a large magnetic low, and was exposed in profile by BHT 5 which was dug to explore the nature of the magnetic anomaly. The exact limits of this pit were not clearly visible because no distinct changes in soil color were apparent; five soil colors ranging from dark gray (10YR4/1) to very dark grayish brown (10YR3/2) graded into each other in the profile (Figure 9-19). Only the bottom of the pit was clearly distinguishable, due to the fact that the underlying brownish yellow (10YR6/6) subsoil provided a sharp contrast to the dark pit fill. The pit fill was a hard, compacted, silty loam mixed with clay which exhibited a mirror-like sheen along the walls of the trench.

The bottom of BHT 5 followed the yellow subsoil, except for a small area about 2 m (6.6 ft) long in the deepest part of the trench which remained somewhat darker than the yellowish subsoil. Excluding this darker area where the bottom of the pit was not exposed, the shape of the trench bottom was similar to the shape of the bottom of Feature 28 (Figure 9-19). Maximum depth below ground surface in BHT 5 was 120 cm (47.2 in), but the darker fill extended down further to some undetermined depth.

Two contiguous 100 x 50 cm (39.4 x 19.7 in) units (Units 67 and 72) were excavated perpendicular to BHT 5 in order to obtain a controlled sample of artifacts from Feature 28, and to determine the actual depth of the pit. Unit 67 was dug on the west side of the trench with its southeast corner at N9.5 E15, and Unit 72 was dug as an extension of Unit 67 to the west. Both units were dug in arbitrary 10 cm (3.9 in) levels, with 10 liters of fill from each level saved for future flotation. The remainder of the fill was water screened through .25 in, (6.4 mm) mesh. Fourteen levels were excavated in Unit 67, and 10 were dug in Unit 72, but the bottom of the pit was not reached in either unit due to time constraints. No distinct soil color changes were visible at these depths (140 cm [55.1 in] and 110 cm [43.3 in] below surface, respectively), and baked clay, bone fragments, and charcoal were still observed. In addition, no distinct color changes were observed horizontally in Unit 72 which would indicate that the

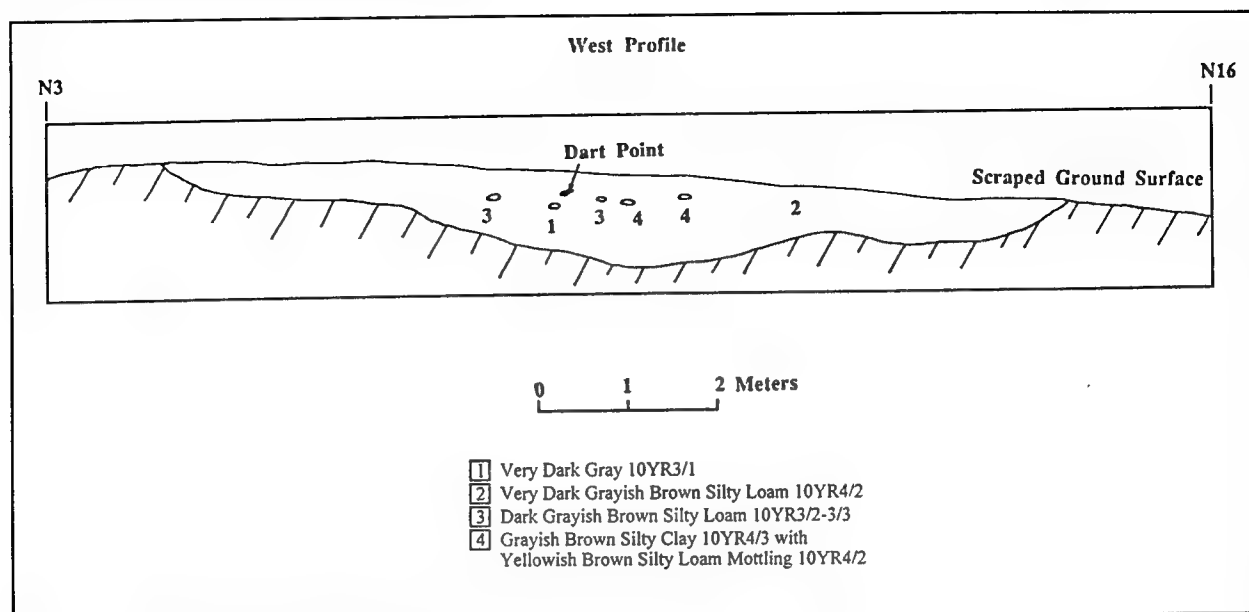


Figure 9-19. Profile of BHT 5 showing large roasting pit Feature 28.

western edge of the pit had been encountered. Thus, neither the full horizontal nor vertical extent of Feature 28 was determined.

In an attempt to determine the eastern limits of the pit and obtain an east-west profile, an additional backhoe trench (BHT 9) was excavated. BHT 9 intersected BHT 5 and extended 10.5 m (34.4 ft) to the east along the N10 line. Not only did this trench provide information on the maximum eastern extent of Feature 28, but it also revealed the presence of another large pit, Feature 29. It was clear that one pit had been cut into by the other, but it was difficult to tell which pit was intrusive and which had been dug first. Feature 28 appeared to extend ca. 2-2.5 m (6.6-8.2 ft) east of BHT 5. Maximum depth of Feature 28 was not reached because BHT 9 was not dug quite deep enough at its point of intersection with BHT 5 to expose the entire pit profile.

Units 67 and 72 in Feature 28 yielded dart points, bifaces, flakes, unifaces, cores, baked clay, and fire-cracked rock. Four dart points (e.g., one Gary and three untyped, contracting stem points) and an arrow point preform were recovered from Levels 1-3. Only two sherds were recovered, and they were confined to the upper two levels. Faunal remains were almost nonexistent; no measurable quantities of bone and only one gram of mussel shell were obtained. The densest concentrations of fire-cracked rock were recovered from the upper four levels, although every level contained some. Baked clay was concentrated in different levels within each unit. In Unit 67, the peaks occurred in Levels 2, 9, 10, and 14, whereas in Unit 72 much more baked clay was recovered

throughout the entire unit and peaks were observed in Levels 3, 7, and 8. A high number of aborted bifaces (12 early stage and 5 late stage) were recovered from Levels 1-5. A small, thin biface, possibly a knife, was found in Level 4 and a bifacial scraper similar to the ones described for Feature 25 was found in Level 2. One sidescraper, two endscrapers, one denticulate, one graver, four marginally modified unifaces with notches, 47 marginally modified unifaces with straight to convex working edges, and one marginally modified piece with both concave and convex working edges were found in the upper five levels.

The dart points and the ceramics confined to the uppermost levels of the pit might have been incidental inclusions deposited after the pit had been abandoned and refilled. Since almost all of the identifiable tools were confined to the upper five levels, it was impossible to discern which tools were directly related to the utilization of Feature 28 from those deposited at a later point in time. Presumably, the relatively high density of tools was the result of activity related to the use of Feature 28. Based on the morphological similarity of this pit with Feature 25, and with large pits classified as roasting pits in the Richland Creek area, it seems likely that this was also a roasting pit.

Feature 29 was also a very large pit, quite similar to Feature 28, that was found on top of Rise I and was partially responsible for the large magnetic low associated with Feature 28. It was discovered in BHT 9, and may have been intrusive into Feature 28. The exact limits of

this pit were not clearly visible because the western boundary was obscured by the juncture with Feature 28. Feature 29 was estimated to measure ca. 6.5 m (21.3 ft) east-west, based on extrapolation of the curves in the walls visible in the bottom half of the profile. Maximum depth was about 185 cm (72.8 in) below ground surface. The bottom of the pit was undulating and irregular, due in part to root and rodent disturbance, and probably to the presence of other intrusive pits. For example, in the south profile, a possible pit was visible near the eastern end of the pit as a symmetrical dip in the pit wall, and a rodent run was visible as an extension of the dark pit fill cutting through the curve of the wall near the bottom of the pit.

Soil colors of the pit fill ranged from very dark grayish brown (10YR3/2) to dark grayish brown (10YR3/3). The bottom of the pit was clearly visible, due to the fact that the underlying brownish yellow (10YR6/4 to 6/6) subsoil provided a sharp contrast with the dark pit fill. The texture of the pit fill was identical to that of Feature 28: a hard, compacted, silty loam mixed with clay which exhibited a sheen with mirror-like reflective properties along the walls of the trench. The subsoil beneath the deepest part of the pit was sandier than the clay B horizon observed in the east half of the profile, and apparently represented the C horizon. No controlled excavations were conducted within this feature due to time constraints; no artifacts were collected; and the profile was not drawn. Based on its similarity to Feature 28, it seems reasonable to assume that Feature 29 fulfilled a similar function.

Postholes and Small Pits

Fourteen features were classified as postholes, or posthole-size pits, on the basis of size and shape in plan view and profile. These small pits were all less than 0.1 m² in area. All of these features were located on Rise I and were concentrated at the northern end of Transect 1 and along two portions of Transect 5. Posthole numbers were assigned to those features that were unquestionably caused by the placement of posts, whereas small pits which may have been postholes were assigned regular feature numbers. Thus, Features 4, 7, 8, and 12 are included in this discussion in addition to Postholes 1-10.

Feature 4 was a small, oval, posthole-size pit which was first recognized in Units 52 and 53, immediately west of Feature 3, at a depth of 30 cm (11.8 in) below surface. The north end of the feature extended into the north wall of the Rise II Block. The portion of the feature visible within the excavation units extended 18 cm (7.1 in) north-south by 22 cm (8.7 in) east-west (Figure 9-11). The pit walls sloped gently to a depth of 42 cm (16.5 in) at the

north wall of the unit. The maximum dimensions could not be estimated because the bottom of the feature was not reached at that point (Figure 9-20a). The pit fill was a very dark grayish brown (10YR3/2) sandy loam.

Feature 7 was a posthole in Transect 5 which was first recognized at a depth of 20 cm (7.9 in) below surface as an oval organic stain measuring ca. 27 cm (10.6 in) east-west by 29 cm (11.4 in) north-south (Figure 9-14). The feature was located 110 cm (43.3 in) south of Feature 8, and 90 cm (35.4 in) east of Feature 6. Maximum depth was 43 cm (16.9 in) below surface, and the fill was a black (10YR2/1) sandy loam (Figure 9-20b). The feature had steep walls and a flat bottom, a profile similar to the postholes found further east in Transect 5. About 20 liters of matrix were recovered for flotation, and stored. The remaining fill was water screened through .25 in (6.4 mm) mesh. An extremely high frequency of charcoal (30 g) was recovered, but nothing else was found.

Feature 8 was another posthole recognized in Transect 5 at a depth of ca. 22 cm (8.7 in) below surface. It appeared as an oval organic stain measuring ca. 27 cm (10.6 in) east-west by 31 cm (12.2 in) north-south. The feature was located 60 cm (23.6 in) southeast of Feature 9 (Figure 9-14). Maximum depth was 35 cm (13.8 in) below surface, and the fill was a black (10YR2/1) sandy loam. Like Feature 7, this feature had steep walls and a flat bottom (Figure 9-20c).

Feature 12 was an oval pit measuring about 35 cm (13.8 in) northeast-southwest by 20 cm (7.9 in) northwest-southeast which was found at the northern end of Transect 1 (Figure 9-12). The scraped surface was only about 5 cm (2 in) below ground surface at this end of the transect. The pit profile revealed relatively steep walls and a flat bottom at 19 cm (7.5 in) below the scraped surface (Figure 9-20d). The profile looked very much like that of a posthole. Feature fill was a very dark grayish brown (10YR3/2) silty loam.

Postholes 1-7 are described together here, rather than individually, because they shared nearly identical characteristics and appeared to be part of the same structure or group of structures. The narrow range of individual variation is illustrated by the metrical data presented in Table 9-6. Postholes 1-5 were first observed in Transect 5 on top of Rise I at a depth of about 20 cm (7.9 in) below surface (Figure 9-14a). When the edge of Posthole 5 was discovered in the north edge of Transect 5, a larger area was mechanically scraped to search for additional postholes. Postholes 6 and 7 (see Figure 9-14a) were uncovered within this newly scraped area.

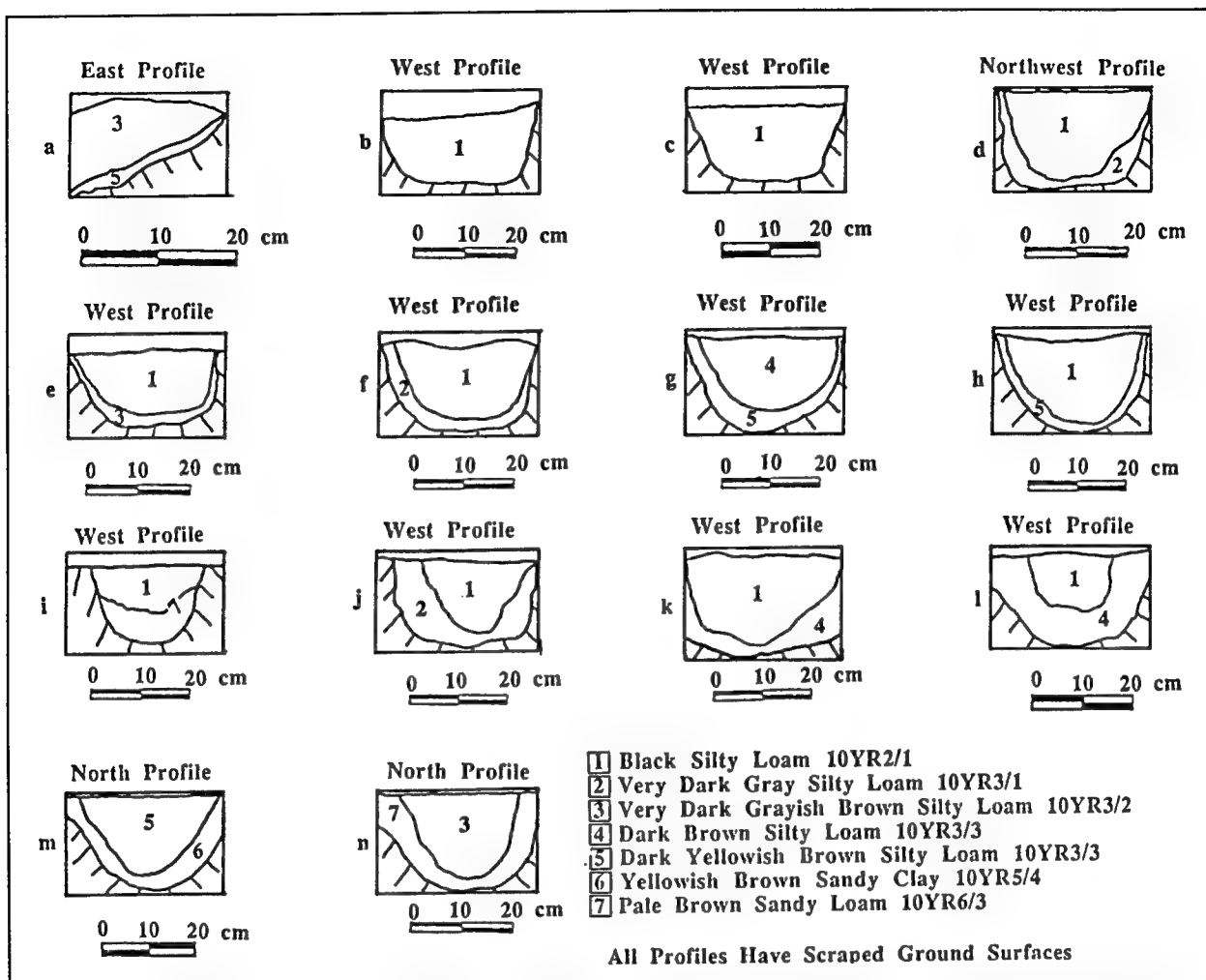


Figure 9-20. Profiles of postholes: (a) Feature 4; (b) Feature 7; (c) Feature 8; (d) Feature 12; (e) Posthole 1; (f) Posthole 2; (g) Posthole 3; (h) Posthole 4; (i) Posthole 5; (j) Posthole 6; (k) Posthole 7; (l) Posthole 8; (m) Posthole 9; and (n) Posthole 10.

All of the postholes appeared as roughly circular to oval organic stains measuring 20-35 cm (7.9-13.8 in) in diameter (Figure 9-20e through 9-20k). Maximum depth ranged between 12-25 cm (4.7-9.8 in) below scraped surface (32-45 cm [12.6-17.7 in] below surface). The fill consisted of black (10YR2/1) to very dark gray (10YR3/1) silty loam with an abundance of charcoal fragments. The shape of the postholes in profile varied slightly. Postholes 1 to 3 were relatively basin-shaped with steep walls and flat to slightly concave bases; the remaining postholes exhibited steep walls that tapered down to a point in the lower 5 cm (2 in) or so.

Postholes 1-7 were clustered together in a relatively small area measuring roughly 6 x 3.5 m (19.7 x 11.5 ft) at intervals ranging from 65-125 cm (25.6-49.2 in). The close spacing and similar morphological characteristics observed for these postholes suggested that they might

have been part of one or more related structures. However, no clear patterning in the arrangement of the postholes was discernable which would permit the identification of a dwelling. It seems highly likely that these postholes were used together to form one or more structures, but the nature of these structures cannot be determined. They might have been posts for drying racks, covered work areas, summer houses, or even more substantial dwellings.

Radiometric dating provides additional support for the hypothesis that these postholes were used together to form a structure during the same period of occupation. Charcoal samples recovered from the fill of Postholes 1 and 3 yielded nearly identical radiocarbon dates. These charcoal specimens were relatively large and are believed to have been charred remnants of the posts rather than small charcoal flecks that could have entered into the fill

at some point after the posts rotted. A radiocarbon date of 990 ± 40 B.P. (SMU-1954, uncorrected) was obtained from Posthole 1, and a date of 960 ± 40 B.P. (SMU-1958, uncorrected) was obtained from Posthole 3. When calibrated, these dates translate as A.D. 1035 ± 50 (SMU-1954, corrected) and A.D. 1070 ± 60 (SMU-1958, corrected), respectively. These dates place the use of the structure within the Early Caddoan period, at about the same time that radiocarbon dates document major occupations at the Doctors Creek site and the Thomas site. Posthole 8 was found in Transect 5 about 6 m (19.7 ft) east of Posthole 1, and was, therefore, not associated with the structure or structures formed by Postholes 1-7. However, Posthole 8 was virtually identical in shape to Postholes 1-3: basin-shaped with steep walls and a slightly concave base (Figure 9-20). It also had the same color of fill: black to very dark gray. On the basis of morphological characteristics, Posthole 8 looked nearly identical to the other postholes on top of Rise I and probably was a result of the Early Caddoan period occupation.

Postholes 9 and 10 were found about 120 cm (47.2 in) apart near the northern end of Transect 1, on the eastern end of Rise I. Posthole 9 was located in the edge of the wall of Feature 15 (Figure 9-12), and Posthole 10 was within the large amorphous organic stain surrounding Feature 15 and other features in Transect 1 (see Feature 15 discussion). Posthole 9 measured 22 cm (8.7 in) by 26 cm (10.2 in), see Figure 9-20m, and Posthole 10 measured 24 cm (9.4 in) by 28 cm (11 in), see Figure 9-20n. Both of these features exhibited the steep walls characteristic of postholes and bases that tapered down to a point in the lower 5 cm (2 in). As previously stated, Feature 12 at the northernmost end of Transect 1, was most likely a posthole as well. It received a feature number rather than a posthole number because it was slightly larger in diameter than Postholes 9 and 10 and was not recognized as a possible posthole until viewed in plan view. However, it was well within the range of variation noted for other postholes on the site, and its profile was typical of other postholes. It was located 220 cm (86.6 in) northeast of Posthole 10 and 260 cm (102.4 in) northwest of Posthole 9, forming a triangular pattern. It is possible that these three postholes formed part of some sort of structure, but it seems more likely that they were unrelated, isolated posts.

Features 7 and 8, described previously, were the only other postholes recognized at the site aside from the possible posthole present in the center of Feature 6. All of these postholes were found in close proximity to each other at the western end of Transect 5, but no clear pattern

indicative of a structure was observed. Thus, three clusters of postholes were recognized at the Lawson site: Features 6, 7, and 8 at the west end of Transect 5, Postholes 1-7 near the center of Transect 5, and Postholes 9 and 10, along with Feature 12, at the northern end of Transect 1. All three of these clusters were situated along the crest of Rise I, which would have been the most logical setting for the construction of dwellings from the standpoint of drainage considerations. Although the existence of substantial dwellings cannot be demonstrated conclusively, the posthole clusters and concentration of daub fragments containing pole impressions (found during the 1972 testing program along the crest of the landform) demonstrate that a considerable amount of activity was conducted on the top of Rise I, and strongly suggests that at least some ephemeral structures were constructed.

Grave Pits

Three grave pits were encountered during the testing and mitigation phase excavations at the Lawson site. Feature 1 was the grave pit for Burial 1, Feature 2 was the grave pit for Burial 2, and Feature 24 was the grave pit for Burial 6.

Feature 1 was a grave pit which contained human skeletal remains (Burial 1) that was found in BHT 13-A South during testing. The pit measured ca. 100 cm (39.4 in) north-northwest to south-southeast, by 80 cm (31.5 in) north-northeast to south-southwest and was excavated to a depth of 74 cm (29.1 in) below surface before the skeletal remains were encountered and excavation ceased (Figure 9-21a). The remains were covered until they could be properly excavated during the mitigation phase. The pit fill was a very dark gray (10YR3/1) silty loam. Charcoal from the fill was radiocarbon dated at 1810 ± 110 B.P. (SMU-1878, uncorrected), which, when calibrated, translated as A.D. 210 ± 130 (SMU-1878, corrected).

A 1 x 1 m (3.28 x 3.28 ft) unit was excavated in 10 cm (3.9 in) levels adjacent to BHT 13-A South in order to expose the outline of Feature 1. Once the outline became visible at the base of Level 3, the remaining Feature 1 fill was removed as a single level. The upper levels of the unit were heavily laden with artifacts, whereas the artifact density dropped dramatically below Level 3, within the actual grave fill. No grave goods were associated with this burial. Five projectile points were recovered from the upper two levels of the 1 x 1 m (3.28 x 3.28 ft) unit: a Gary dart point, a contracting stem dart point, a Catahoula-like arrow point, and two untyped, expanding stem arrow points. Bifaces were confined to Level 1 and included a dart point preform, an aborted biface (early), and two fragments. Two endscrapers, a denticulate, and

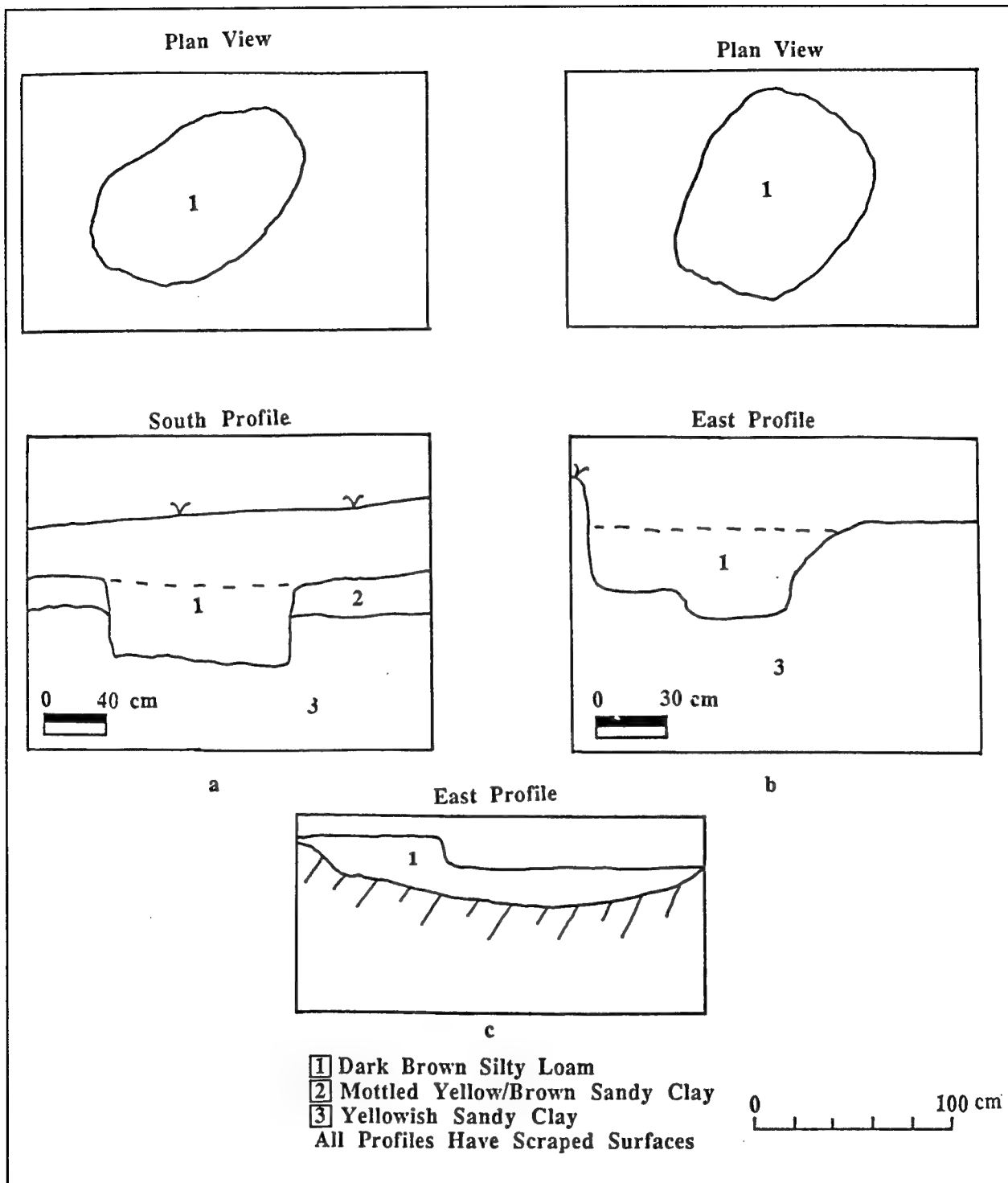


Figure 9-21. Profiles of grave pits: (a) Feature 1; (b) Feature 2; and (c) Feature 24.

19 marginally modified pieces with straight to convex working edges were also found in the upper levels. Very high lithic debris and fire-cracked rock densities were also recovered from the upper levels, as were 16 ceramic

sherds.

The concentration of artifacts in the upper levels coupled with the relative lack of artifacts in the lower pit fill indicates that the midden on Rise I accumulated after

the grave for Burial 1 had been dug and filled. Therefore, none of the artifacts described here were connected with the function of Feature 1, even though they were recovered during its investigation.

Feature 2 was another vertical-walled pit found during testing which contained human teeth (labeled Burial 2), so it was probably another grave. It was discovered in the east profile of BHT 13A-South about 2 m (6.6 ft) south of Feature 1, and measured 72 cm (28.3 in) across and 59 cm (23.2 in) deep below ground surface (Figure 9-21b). The pit fill was a very dark gray (10YR3/1). Two Gary dart points were found in the fill, as were eight marginally modified pieces with straight to convex working edges, one core, and one ceramic sherd. Very little bone, baked clay, or fire-cracked rock was present, and flake density was moderate.

Feature 24 was partially exposed in Transect 2 at a depth of 20 cm (7.9 in) below surface. It extended 30 cm (11.8 in) into the west wall of Transect 2, and was fully exposed by hand excavation. The dimensions were ca. 192 cm (75.6 in) east-west by 48 cm (18.9 in) north-south (Figure 9-13). During excavation, human skeletal remains (Burial 6) were unearthed. Bone preservation within the matrix of silty clay was poor, and most of the skeleton was reduced to a smear of crumbled, powdered bone. Enough bone was visible to determine that this had been an extended burial. The pit profile exhibited a light grayish brown (10YR6/2 to 6/3) fill in a shallow pit with gently sloping walls (Figure 9-21c); the bottom extended down about 12 cm (4.7 in) below scraped surface (45 cm [17.7 in] below ground surface). The pit fill contained charcoal, ash, ceramics, and chipped stone tools.

Cremation

One human cremation was found within Transect 5 on Rise I. This feature was recognized by heavily calcined cranial fragments within a dark organic stain (Feature 20).

Feature 20 was an oval basin-shaped pit measuring about 48 cm (18.9 in) northeast-southwest by 66 cm (26 in) northwest-southeast which contained cremated human skeletal remains (Burial 5). The largest concentration of burned bone was found in a 20 x 20 cm (7.9 x 7.9 in) area near the center of the pit. This pit was found toward the eastern end of Transect 5, along the E 21 line (Figure 9-14). The scraped surface was only about 12 cm (4.7 in) below ground surface along this portion of the transect. The pit profile exhibited gradually sloping walls with the bottom extending down 15 cm (5.9 in) below the scraped surface. Feature fill was a very dark grayish brown

(10YR3/2) silty loam. The entire pit was excavated. Naturally, the float sample contained a very high density of bone, but it also contained a high density of lithic debris. The lithic debris were most likely present in the soil before the pit was dug, and thus provides an indication of the lithic debris density present in the general midden on the top of Rise I.

Burials

Six human burials were excavated during the mitigation phase excavations. Burials 1 and 2 were located in Features 1 and 2 within BHT 13A-South. Burial 3 was located in Transect 3 on Rise II. Burial 4 was inside Feature 9. Burial 5 was the cremation discovered in Feature 20, and Burial 6 was found in Feature 24. All burials, except for Burial 3, were found on Rise I.

Burial 1 was a flexed burial of an adult which was found during the testing phase in BHT 13-A South at a depth of 74 cm (29.1 in) below surface. During the mitigation phase, it was fully exposed by excavating a 1 x 1 m (3.28 x 3.28 ft) unit along the west side of BHT 13-A. The skeleton had been placed in a clearly defined grave pit (Feature 1) on its left side with its head to the southeast (face to the southwest). The maximum dimensions of the skeleton were 75 cm (29.5 in) east-southeast to west-northwest by 45 cm (17.7 in) north-northeast to south-southwest. Vertically, the skeleton was situated 74-88 cm (29.1-34.6 in) below surface, for a maximum thickness of 14 cm (5.5 in). Some of the bones had decomposed completely (tarsals, carpals, and vertebrae), and others were very fragile, but overall preservation was fair. Osteological analysis indicates that this individual was a 12-15 year old child (see Appendix C). No mortuary furniture was found in association with the skeleton, although several identifiable tools were found in the upper two levels of the 1 x 1 m (3.28 x 3.28 ft) unit dug to expose the burial (see Feature 1 discussion). Cultural materials found in the grave fill included midden refuse such as charcoal, flakes, and fire-cracked rock. Charcoal from the fill was radiocarbon dated at 1810 ± 110 B.P. (SMU-1878, uncorrected). When calibrated, this date translates to A.D. 210 ± 130 (SMU-1878, corrected).

Burial 2 consisted solely of six human deciduous teeth found in a basin-shaped pit (Feature 2) in BHT 13-A South during the testing phase. Excavation ceased when these teeth were uncovered so that a careful job of excavation could be conducted during the intensive excavations phase. However, no additional human skeletal material was found during the intensive excavations

phase. The small size of the teeth indicated that Burial 2 was an infant burial. As is often the case with infants, everything deteriorated except the teeth.

Burial 3 was a flexed burial which was found in Transect 3 at a depth of only 13 cm (5.1 in) below surface. No grave pit was visible. The skeleton had been placed on its right side with its head to the west (face to the north). The maximum dimensions of the skeleton were 84 cm (33.1 in) east-northeast to west-southwest by 52 cm (20.5 in) north-northwest to south-southeast. Vertically, the skeleton was situated 13-21 cm (5.1-8.3 in) below surface, for a maximum thickness of 8 cm (3.1 in). Bone preservation was excellent; nearly all bones, including tarsals and carpals, were recovered. Osteological analysis indicated that this individual was an adult female 40-50 years old at time of death (see Appendix C). No mortuary furniture was found in association with the skeleton.

Burial 4 was the partial skeleton of a flexed individual which was found in Feature 9 at the western end of Transect 5. The skeletal remains were uncovered in the western quarter of the pit at a depth of ca. 22 cm (8.7 in) below surface. Although Burial 4 was found within a pit, Feature 9 was too large to have served solely as a grave pit. The burial was probably intrusive into the feature at some point after the pit had been abandoned. The skeleton had been placed on its right side with its head to the south (face to the west). The maximum dimensions of the skeleton were 23 cm (9 in) east-northeast to west-southwest by 64 cm (25.2 in) north-northwest to south-southeast. Vertically, the skeleton was situated 22-27 cm (8.7-10.6 in) below surface, for a maximum thickness of only 5 cm (2 in). Bone preservation was very poor, and the only identifiable elements recovered were portions of long bones and some cranial fragments. A Gary dart point was recovered about 30 cm (11.8 in) southwest of the burial, but it was probably part of the Feature 9 fill rather than grave furniture.

Burial 5 was a cremation found in an oval basin-shaped pit (Feature 20) measuring ca. 48 cm (18.9 in) northeast-southwest by 66 cm (26 in) northwest-southeast. The pit was filled with burned bone fragments, many of which were identifiable as human cranial fragments. The largest concentration of burned bone was found in a 20 x 20 cm (7.9 x 7.9 in) area near the center of the pit. Osteological analysis suggests that this individual was a child 5-10 years old at time of death. As is the case with most cremations, no mortuary furniture was present. Artifacts within the fill of Feature 20 were apparently the result of midden deposition.

Burial 6 was an extended burial found in Feature 24, an oval to rectangular grave pit. The top of the skull was found at a depth of only 23 cm (9 in) below surface, and the base of the pelvis at about 36 cm (14.2 in) below surface. The maximum dimensions of the skeleton were 152 cm (59.8 in) east-west by 30 cm (11.8 in) north-south. Most of the bones had decomposed completely and were visible only as a stain in the soil; only a few small long bone fragments were recovered. No mortuary furniture was observed, but ash, charred seeds, ceramics, and flakes were present in the fill.

SITE CHRONOLOGY

Radiocarbon Determinations

Radiocarbon dates were recovered from four features at the Lawson site, one excavated during the 1972 season, and three excavated during the 1987 season. The 1972 sample from Hearth 2 yielded a calibrated radiocarbon date of 172 B.C. \pm 101 (Tx-1961, corrected), or 2080 \pm 60 B.P. (Tx-1961, uncorrected). Similarly, charcoal from Feature 1 (Burial 1) yielded a calibrated date of A.D. 210 \pm 130 (SMU-1878, corrected), or 1810 \pm 110 B.P. (SMU-1878, uncorrected). These dates demonstrate that the site was occupied during the first portion of the Early Ceramic period (ca. 200 B.C. to ca. A.D. 800).

Charcoal from Posthole 1 yielded a calibrated date of A.D. 1035 \pm 50 (SMU-1954, corrected), or 990 \pm 40 B.P. (SMU-1954, uncorrected). Likewise, charcoal from Posthole 3 yielded a date of A.D. 1070 \pm 60 (SMU-1958, corrected) or 960 \pm 40 B.P. (SMU-1958, uncorrected). These dates place the occupation responsible for Postholes 1-7 within the middle portion of the Early Caddoan period, which runs from ca. A.D. 800 to ca. 1400. Therefore, the four radiocarbon dates obtained from the Lawson site document multiple components ranging from the Early Ceramic through the Early Caddoan periods.

Chronology Of Projectile Point Types

None of the projectile points from the Lawson site were obtained from well dated contexts. Although several dart and arrow points were found in the uppermost levels of Feature 1, which yielded a radiocarbon date, none were found deep within the feature fill where the radiocarbon sample was taken, so the date is unrelated to these points. Since no dated contexts were available for constructing a projectile point chronology, the projectile point chronology for the Lawson site is based on comparisons with point types found in dated contexts at other Cooper

Lake sites, and with date ranges published for various types in the literature.

The earliest occupation at the Lawson site may have been responsible for the presence of an untyped, slightly expanding stem dart point found in Feature 9. No specific temporal range may be suggested for this point since it does not fit any description of dated types. However, several expanding stem types in central Texas and eastern Texas are associated with Archaic period sites (Turner and Hester 1985:50). The best evidence for Archaic period occupation was recovered during the 1972 testing program when a Darl point and a Yarbrough point were recovered. Both of these types date from the Archaic period. Darl is a Transitional Archaic form dating to ca. A.D. 200 (Turner and Hester 1985:84). Yarbrough points are not as well dated; in Central Texas they may date as early as the Early Archaic or later (Turner and Hester 1985:160), although a Middle Archaic time frame has been suggested for Lake Limestone (Prewitt 1974) and the Richland/Chambers Reservoir (McGregor and Bruseeth 1987a). At any rate, both are definitely Archaic period point types.

Other possible Archaic points were recognized during a re-examination of the 1972 points by the author. An expanding stem with a concave base like that found on Martindale points was observed, as was an expanding stem point with a convex base very similar to a Godley point. These are both central Texas dart point types which date from the Early Archaic (Martindale) to the Late Archaic and on into the Late Prehistoric periods (Godley). Although no definite identification could be made for either point, their strong resemblances to these types suggest that they also may be the result of Archaic period occupation.

On the whole, the projectile point evidence for Archaic period occupation at the Lawson site was sparse in comparison with the evidence for Late Prehistoric period occupation. The ratio of darts to arrows was nearly one to one, with the total number of dart points at 32 (42 including all fragments), and the number of arrow points at 27 (35 including all fragments). At first glance, this might appear to indicate that the archaeological deposit represents equally intensive occupation by both Archaic and Late Prehistoric groups. However, most of the dart points recovered during both the 1972 work and the 1987 work were Gary points, or untyped straight stem points that were like Gary points in all other respects. Since Gary dart points have been found in association with arrow points and/or ceramics at other sites, these dart to arrow ratios do not truly reflect the relative degree of Archaic period versus Late Prehistoric period occupation. Since only a few dart points could be confidently assigned to the

Archaic period, the principal period of site occupation appears to have occurred during the Late Prehistoric period, specifically during the Early Ceramic and Early Caddoan periods.

The relatively low number of arrow points recovered at the Lawson site suggests that Late Prehistoric occupation may have been more prevalent during the Early Ceramic period. This pattern contrasts with that observed at the Doctors Creek site, where the arrow points outnumbered the dart points by nearly five to one. Although both Early Ceramic and Early Caddoan occupations occurred at the Doctors Creek site, radiocarbon dates indicated that it was most intensively occupied during the middle of the Early Caddoan period (ca. A.D. 900-1100). Presumably, most of the arrow points were deposited during this period. The comparative lack of arrow points at the Lawson site indicates that the it was occupied less intensively during the Early Caddoan period than was the Doctors Creek site.

Few identifiable arrow points were recovered; only one Agee-like point, one Alba, one Rockwall, one Steiner, and four Catahoula-like points were found. Agee points have been dated to between A.D. 1000-1300 at sites in Arkansas and Louisiana (Turner and Hester 1985:162). Alba points date ca. A.D. 800-1200 (Turner and Hester 1985:163). Catahoula points date ca. A.D. 700-1100, the same range listed for Friley points (Turner and Hester 1985:175). Scallorn points have been estimated to date ca. A.D. 700-1200 (Turner and Hester 1985:189). At Richland/Chambers Reservoir, evidence suggested that Alba points were used later than Scallorn and Steiner points. For example, McGregor and Bruseeth (1987a:183) considered Alba points to be diagnostic of the Round Prairie phase (ca. A.D. 1000-1200), whereas Scallorn and Steiner points were linked to the Richland Creek phase (ca. A.D. 800-1000).

All other arrow points were miscellaneous points which could not be assigned to any existing type. They included a variety of blade styles, and four basic shapes of basal hafting areas (expanding, contracting, straight, and bulbar). Since no specific temporal estimates are published for these untyped specimens, it was not possible to assign most of them to a specific period. The report on the 1972 investigations listed a Livermore-like point at the Lawson site (Hyatt et al. 1974:66), but this point appears to be identical to some points recorded as untyped, straight stem arrow points during the 1987 analysis. Livermore is a Trans-Pecos arrow point type that is characterized by deeply concave lateral edges and crude workmanship (Turner and Hester 1985:181), whereas the illustrated point had a square base like an Alba point and was finely chipped. It may have been an Alba which had

been reworked to form concave lateral edges. At any rate, it is unlikely that this point was related to the Livermore type.

INTRASITE SPATIAL PATTERNING

The vertical and horizontal distribution of artifacts across the site and within each block are examined in this section in an attempt to define temporally and functionally discrete site areas.

Vertical Patterning

The vertical distribution of cultural materials was examined by computer analyses for discernable cultural stratigraphy and an interpretable chronological sequence. Information from 1 x 1 m (3.28 x 3.28 ft) units excavated during the 1972 testing program was examined along with controlled excavation data from the 1987 mitigation program to search for evidence of vertical separation of components. Data from 30 x 30 cm (11.8 x 11.8 in) units were not incorporated in this analysis because these units were not dug in levels, whereas all 1 x 1 m (3.28 x 3.28 ft) units were excavated in arbitrary 10 cm (3.9 in) levels. All computer sorts are on file at SMU.

The vertical distribution of artifacts within the Rise I Block (Units 68 - 71) was such that the highest frequencies of artifacts occurred in Level 1 in all units, with the next highest frequencies in Level 2, followed by a noticeable drop in all artifact classes in Level 3, and a dramatic decrease in Level 4. Units 23, 24, and 66, also on top of Rise I, exhibited this same pattern. This distribution pattern, characterized by a regular decrease in artifact content as depth increases, is typical of nonaggrading deposits. Artifacts from all time periods were deposited on roughly the same surface, and were later moved downward through natural and cultural soil disturbance processes. For instance, erosion along the top of the rise deflated the deposit, increasing the artifact density in Level 1 by washing away some of the soil while leaving the artifacts more or less in place. In addition, rodent and root disturbances carried artifacts downward from their original point of deposition, and plowing mixed artifacts within the upper levels, moving materials deposited on the surface down to the maximum depth of the plow zone.

The same pattern was also observed for most test units excavated along the top of Rise I in 1972. However, in many of those units, the field notes indicated that only Level 1 was screened because the compacted silty loam was difficult to screen, and there did not seem to be many artifacts below Level 1. As a result, deeper levels were shovel skimmed and troweled to recover artifacts.

The vertical distribution of artifacts within the Rise II Block did not exhibit the regular decreases with depth observed on Rise I. In several units, the highest frequencies of artifacts occurred in Levels 1 or 2, depending on the artifact class examined. For instance, in Unit 62, the highest frequencies of lithic debris, baked clay, and fire-cracked rock were found in Level 1, whereas the highest frequencies of bone and shell were in Level 2. This pattern was not consistent from unit to unit, for in some units (e.g., Unit 54) the highest frequencies for nearly all artifact classes occurred in Level 1, whereas in others (e.g., Unit 58) the highest frequencies occurred most often in Level 2. In the case of Unit 57, where the highest frequencies for several classes were recorded in Level 3, it is likely that a shallow refuse-filled pit had been encountered which was not discernable from the surrounding A horizon soil. However, the erratic nature of the vertical distribution of artifacts in the other units is more difficult to explain.

The explanation for the highest densities occurring in Level 2 at the Doctors Creek site was that soil had been deposited on the site surface some time after site occupation had ceased, primarily as a result of colluvial deposition of upslope sediments after plowing had become commonplace. This explanation does not hold for Rise II on the Lawson site, where a relatively random distribution of artifact classes was noted. These different patterns of vertical distribution on each rise may reflect differences in artifact movement due to the different soil conditions. For example, the compacted silty loam of Rise I may have been more resistant to the vertical displacement of artifacts than was the sandy loam of Rise II. In fact, during excavation, more rodent disturbances were observed in the lower levels of the Rise II units than in units dug on Rise I. It is possible that the increased mixing from rodents caused the more random vertical distribution of artifacts on Rise II.

The vertical distribution of diagnostic arrow points and dart points was examined to search for evidence of chronological separation of cultural strata. No discernable temporal sequence was observed on either Rise I or Rise II; artifact types diagnostic of specific time periods were found to be intermixed throughout both midden deposits. For example, dart points were present at all depths within the middens on Rises I and II, from surface down to Level 4. Likewise, untyped contracting and expanding stem varieties of arrow points occurred in Levels 1-3 within both midden deposits. Thus, no evidence whatsoever was found which would suggest that any aggradation had occurred or that vertical separation of components had ever existed at the Lawson site.

The interpretation of site stratigraphy offered by Hyatt et al. (1974:69) assumed that the knoll had been

aggrading throughout the course of prehistory. Consequently, part of the site was interpreted as having a "thick" Caddoan component overlying a "thin" pre-ceramic component, with units interspersed that contained a "thick" Archaic component overlain by a "thin" Caddoan component. "Thickness" of components was based on the depth to which ceramics were found in test units, so if sherds were found in deeper levels, a "thick" Caddoan component was inferred. The authors spoke of "a more intensive occupation 10-20 cm (3.9-7.9 in) below surface than from the surface down to 10 cm (3.9 in)" for some units, as if the uppermost 10 cm (3.9 in) had been deposited at a later date and had covered an occupation layer. This interpretation was based on a misconception of the geomorphology of the landform and ignored the major role that bioturbation and plowing played in the vertical distribution of artifacts. The 1987 data indicate that the "thickness" of components was simply the result of artifact movement downward through the soil as a result of natural and cultural disturbances.

Horizontal Patterning

The horizontal distribution of artifacts across the site was examined in an attempt to define temporally and/or functionally discrete site areas. The major goal of this intrasite spatial analysis was to isolate the different kinds of activities that occurred in different parts of the site. Three types of data were examined for this analysis: magnetic data, artifact data, and feature data. Maps of magnetic anomalies were compared with maps of cultural features to determine which features, if any, corresponded with these anomalies. Artifact distributions were examined to determine if interpretable activity areas could be detected. Excavations conducted within the resistivity survey block include BHT 6, Units 64 and 65, and a bulldozer swath. No features were observed in profile in BHT 6, and no obvious anomalies suggesting the presence of cultural features were observable on the map. However, it was not possible to assess the full level of correspondence between resistivity anomalies and cultural features on the basis of these limited excavations.

SYMAPs, which proved useful for interpreting artifact distributions at other Cooper Lake sites, were not generated for the Lawson site because most of the site was not sampled by means of systematically spaced units. The 30 x 30 cm (11.8 x 11.8 in) units provided systematic coverage of the western end of the site (Rise III), but they were spaced too far apart (20 m [65.6 ft] intervals) to provide meaningful maps of artifact concentrations. Although the block excavations on Rises I and II provided good samples of the cultural materials present on each rise, they were too small to expose any activity areas that

may have been present. Due to this sampling strategy, artifact distributions were examined by hand-plotting tool types and other artifact classes.

Magnetic and Resistivity Data

Several magnetic anomalies of varying size, intensity, and polarity were observed, but few appeared to have been caused by cultural features (Figure 9-22). In all, five anomalies were investigated by means of excavation. Three small anomalies (ca. 1 m [3.28 ft] in diameter) exhibited magnitudes within the range observed for cultural features at other sites in North Central Texas (Huggins et al. 1987). Two were positive anomalies ranging in intensity from 34 to 52 gammas, whereas one was a negative anomaly measuring -10 gammas. Three 1 x 1 m (3.28 x 3.28 ft) units (Units 64-66) were excavated to examine several anomalies. One high intensity anomaly measuring 500 gammas was investigated by means of shovel testing, rather than by controlled excavation, because its magnitude was so great that it was believed to have been caused by metal. Finally, one very large negative anomaly (at least 14 m²) in the northeast corner of the western block, possibly extending into the northwest corner of the eastern block, was examined by excavating BHT 5.

Unfortunately, examination of the small anomalies did not uncover cultural features. The source of anomalous magnetism in both Units 64 and 65 was traced to metal nails, apparently nails used by the 1972 SMU crew to mark the corners of test units. In fact, Unit 65 was placed almost directly over old Unit 4, a fact that was not realized until subsequent mechanical scraping had completely exposed Unit 9, permitting the old SMU units to be plotted accurately on the 1987 map of excavation units. This was helpful in calibrating spatial information but hindered the magnetic resolution.

Only Unit 66 was free of metallic objects. It was excavated in three levels to a depth of 30 cm (11.8 in) below surface, but no obvious features were discovered. However, the soil at a depth of about 14 cm (5.5 in) became highly compacted, extremely hard to dig, and contained charcoal flecks and small pieces of baked clay. As excavation proceeded, the area of compacted soil became smaller and smaller until, at a depth of 20 cm (7.9 in) below surface, only two small areas of compacted soil were present extending 10-15 cm (3.9-5.9 in) from the east and west walls. The compaction of the soil might have been caused by burning, since some charcoal and baked clay were found, but no conclusive evidence was found which could identify this activity as the source of anomalous magnetism.

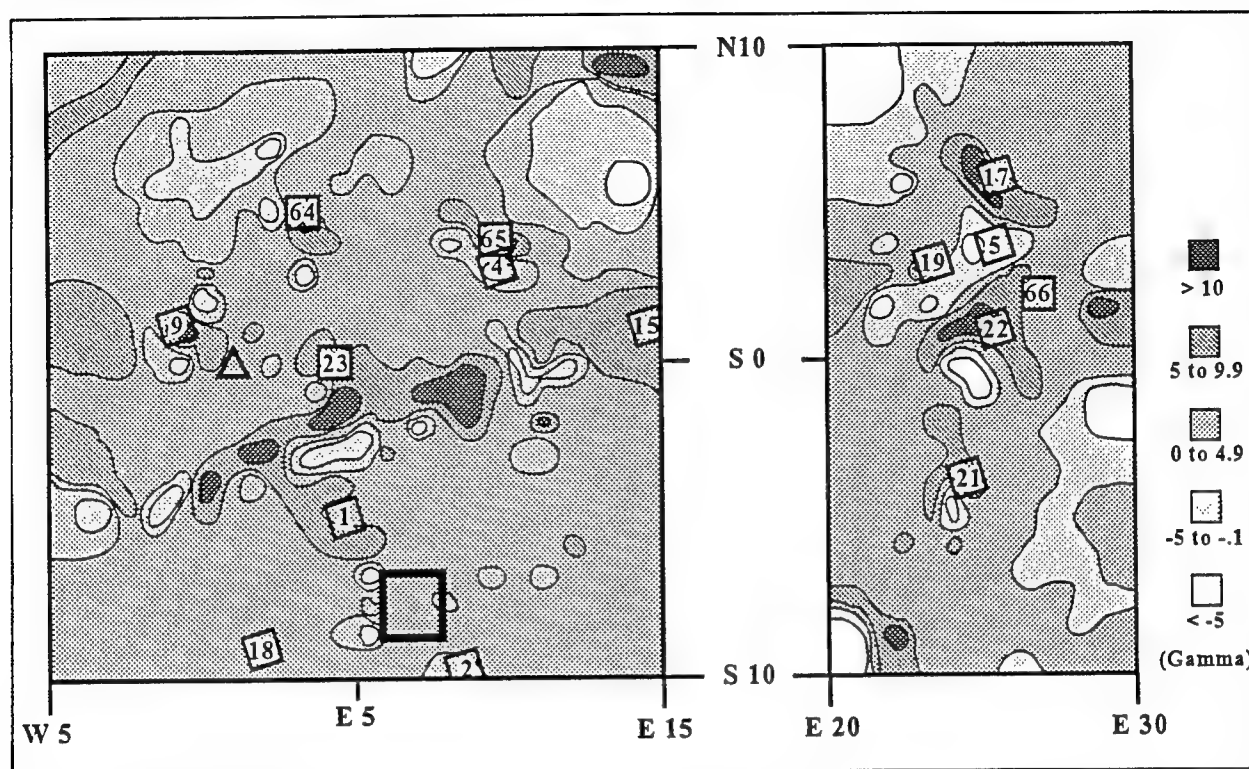


Figure 9-22. Map of magnetic anomalies recorded at 41HP78: the Lawson site. The Rise I Midden Block is located in the inset square of the left frame.

The 500 gamma anomaly was found to have been caused by a piece of highly magnetic tape. The tape had been intentionally placed in the bottom of NTSU's test pits, in accordance with the stipulations of their contract, so that the pits could be relocated easily with the aid of a metal detector. Unfortunately, the presence of magnetic tape at several locations across the site made it difficult to assess the true nature of the site's magnetic field. If magnetic surveys may be implemented at future dates, plastic markers should be employed to avoid this loss of information.

The large negative anomaly proved to have been caused by two very large, deep pit features (Features 28 and 29). Although the shape of the negative anomaly did not precisely match that of the pits (Feature 28 extended further to the north than did the anomaly), it did successfully detect the features. It is unlikely that extensive excavations would have been conducted in this area had it not been for the presence of the negative anomaly. Therefore, the results of the magnetic survey were useful for locating and directing excavations toward these large features.

The map of magnetic anomalies was compared with the map of cultural features in an effort to detect possible hearths and roasting features, and assess the reliability of

this type of remote sensing for locating features at sites in the Cooper Lake area. Despite its successful use at sites in the Richland Creek drainage, magnetic survey failed to identify cultural features at the Doctors Creek site. Therefore, its applicability for use in the Sulphur River valley was called into question. The results from the Lawson site were examined to see if the technique worked any better on a different landform.

Comparison of magnetic anomalies with the map of features failed to turn up very many correlations. As discussed earlier, many anomalies were caused by metal nails or strips of magnetic tape used to mark test units. The only correlation between a magnetic anomaly and features occurred in the case of the large negative anomaly which was caused by two very large, deep pit features (Features 28 and 29). The results of the magnetic survey were useful for locating and directing excavations toward these large features, but were not effective for locating Feature 18 in the Rise I Block. Unfortunately, the 5 m (16.4 ft) gap between the two magnetic survey grids (from 15W to 20W) encompassed the portion of Transect 5 which contained Postholes 1-7, Feature 21, and Burial 5. No other features were present in Transect 5 other than Posthole 8 at the eastern end, and Features 5-9, inclusive, at the western end. In other words, most of the features

exposed in this transect fell outside of the magnetic survey area, so it was not possible to make a meaningful assessment of the effectiveness of the technique for locating features.

Some irregularly-shaped resistivity anomalies of varying size and intensity were also observed (Figure 9-23). A large high-resistivity anomaly, ranging from 27-32 ohm meters, was present between S5 and S9, and another was observed in the northeast corner which ranged as high as 37.9 ohm meters. The northwest corner was marked by a low-resistivity anomaly ranging between 16.6 and 23.6 ohm meters. An arc of smaller low-resistivity anomalies was present between S0 E25 to S5 E31 which ranged from 16.0-21.9 ohm meters. Due to time constraints, none of the anomalies were investigated by controlled excavation. Instead, a backhoe trench (BHT 6) was excavated across most of the survey area along the S8 line which bisected the large high-resistivity anomaly. Unfortunately, no signs of cultural features were observed in BHT 6.

Artifact Data

The locations of specific tool types were examined to see if they occurred together in clusters, or if different tools used for closely related activities were co-associated. The possibility of horizontal separation of components was examined by noting the presence or absence of specific diagnostic artifacts and raw material types on different portions of the landform.

Rise I. Combining the results of the 1987 mitigation phase work with those of the 1972 testing season proved useful for interpreting the horizontal patterning evident on Rise I. Even though the quantities presented in each data set are not directly comparable, since only some of the levels dug in 1972 were screened, the horizontal distribution of materials on Rise I was fairly well documented by the 18 units which were dug in 1972. This earlier information served as an important supplement to the 1987 data, complementing the feature information retrieved from the mechanically scraped transects. In the following sections, evidence for structures is assessed, and the horizontal distribution of artifacts is examined to identify the boundaries of the midden deposit. The midden sample is examined to assess the nature of activities conducted within the midden area, and finally, evidence for the horizontal separation of components is addressed.

Possible Structures

In 1972, Units 5, 17, 19, and 22 were found to contain daub with pole impressions and a high artifact

content in general (Hyatt et al. 1974:61). In fact, according to Hyatt's field notes, Units 17, 19, and 22 were dug specifically to search for evidence of structures after daub had been found in Unit 5, but Hyatt noted that no other evidence for structures was found.

According to the 1972 mapping data, these units must have been located immediately adjacent to the area that was scraped in 1987 (Figure 9-24) to expose Postholes 1-7 (also see Figure 9-14a). By plotting the locations of the 1972 units onto the 1987 map, the concentrations of pole-impressed daub can be seen to occur within only a few meters of these postholes (for example, Unit 19 fell within 2 m (6.6 ft) of Posthole 6). Thus, the hypothesis that structures existed on top of Rise I, which was first postulated in 1972 on the basis of daub concentrations, was independently proposed in 1987 due to the presence of postholes. It was not until the old SMU units were plotted onto the 1987 map that both phenomena were shown to occur in the same area. Taken together, the data from both seasons support the notion that structures once existed on top of Rise I in the general area running from E14 to E25, and from N0 to N7. In the absence of definable house walls, this interpretation is simply a hypothesis, and no attempt was made to assess cultural behavior on a household level.

Delineation of the Midden

The midden present on the southern slope of Rise I was most likely the result of the same occupation, or series of brief occupations, which created the postholes and daub concentrations. Therefore, on the basis of the radiocarbon dates from the postholes, the midden was probably deposited during the Early Caddoan period. In this section the maximum extent of the midden is examined. Later, this information is used to identify areas where earlier components may have been relatively unmixed with the later materials.

The extent of the midden deposit on Rise I (Figure 9-25) was assessed on the basis of data recovered from the 18 units excavated in 1972 (Units 1 through 6, 9, 10, and 14 through 22), the two units excavated during the 1987 testing (Units 23 and 24), and the three units dug during the 1987 excavation program (Units 64 through 66). Three methods of examining the midden distribution were used, based on slightly different definitions of what constitutes a midden. If a midden is defined by the area of densest artifact concentration, then the contents of units must be examined to delineate the highest frequencies. Therefore, artifact content of all excavation units was examined to provide insight into the density of the midden deposit and the kinds of activities that were conducted in the areas of greatest artifact concentration. If a midden is

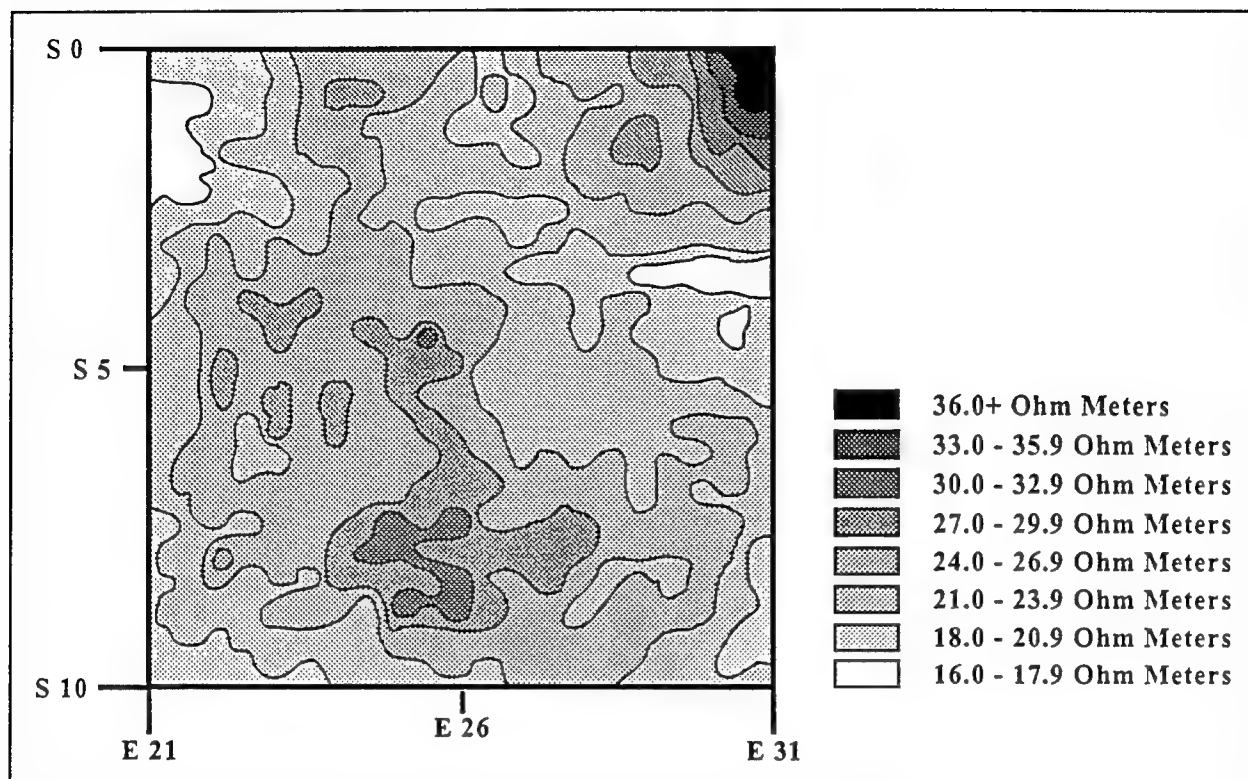


Figure 9-23. Map of resistivity anomalies recorded at 41HP78: the Lawson site.

defined strictly as an area of refuse accumulation, then the maximum distribution of bone is a good delimiter of a midden. As a result, units containing concentrations of bone were plotted to define the extent of the midden. Finally, if a midden is defined as an area of dark, organically enriched soil, then the limits of the black soil color should define the midden boundaries. Thus, subtle shifts in soil color were examined in the profiles of the backhoe trenches to define the extent of the midden.

Units with the highest artifact densities included Units 1, 23, 24, and 66. Unit 1 yielded a straight stem dart point, an expanding stem (Godley-like) dart point, high lithic debris and fire-cracked rock densities, and low densities of other classes. Unit 23 contained two contracting stem dart points, one arrow fragment, two endscrapers, and a few biface fragments, including a biface resharpening flake. It also had a very high density of flakes, and a high density of fire-cracked rock. Unit 24 contained one contracting stem dart point, two endscrapers, a sidescraper, a very high flake density and a medium fire-cracked rock density. Unit 66 yielded three Gary points, one aborted biface, one knife, one endscraper, one sidescraper, numerous marginally modified unifaces, and a total of 43 sherds representing the highest sherd density on the site. It also yielded some of the highest quantities of lithic debris and fire-

cracked rock fragments recorded at the site.

Units along the crest of Rise I with moderate to low artifact densities included Units 4, 9, and 64-66. Unit 4 contained an expanding stem dart point base (Martindale-like) and moderate densities of lithic debris and fire-cracked rock. Toward the west, Unit 9 had only moderate densities of lithic debris and fire-cracked rock and low densities of everything else. Unit 64, dug to investigate a magnetic anomaly, contained no identifiable tools and no sherds, but it was only excavated down one level because the source of the magnetic anomaly (a nail) was found in this level. Unit 65 was also dug down one level, but it yielded a Gary point, three aborted bifaces (two early stage, one late stage), and one sidescraper, and moderate densities of lithic debris and fire-cracked rock.

Further down the slope, Unit 6 had high densities of lithic debris, but low densities of other classes and Unit 20 had low densities for all classes. These two units appeared to lie outside of the midden. On the other hand, Units 11 and 21 both had relatively high frequencies for most artifact classes, and appeared to fall within the midden. Using the criterion of high artifact density as the delimiter of midden, the midden appears to have extended further downslope along the southeastern portion of the knoll.

If the midden is defined as the area of highest organic enrichment resulting from the disposal of refuse and

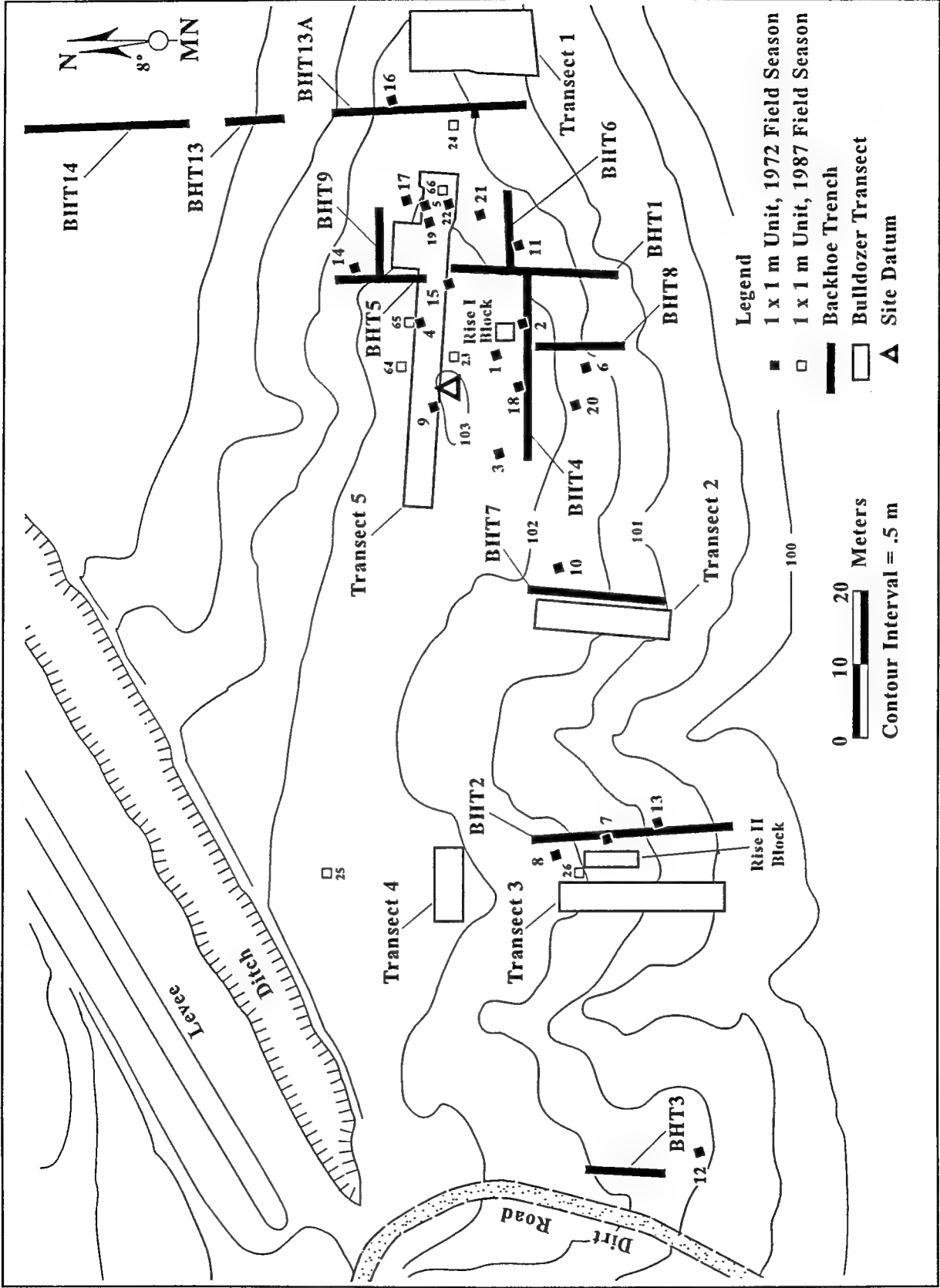


Figure 9-24. Map showing excavation units, trenches, and mechanically scraped areas at 41HP78: the Lawson site.

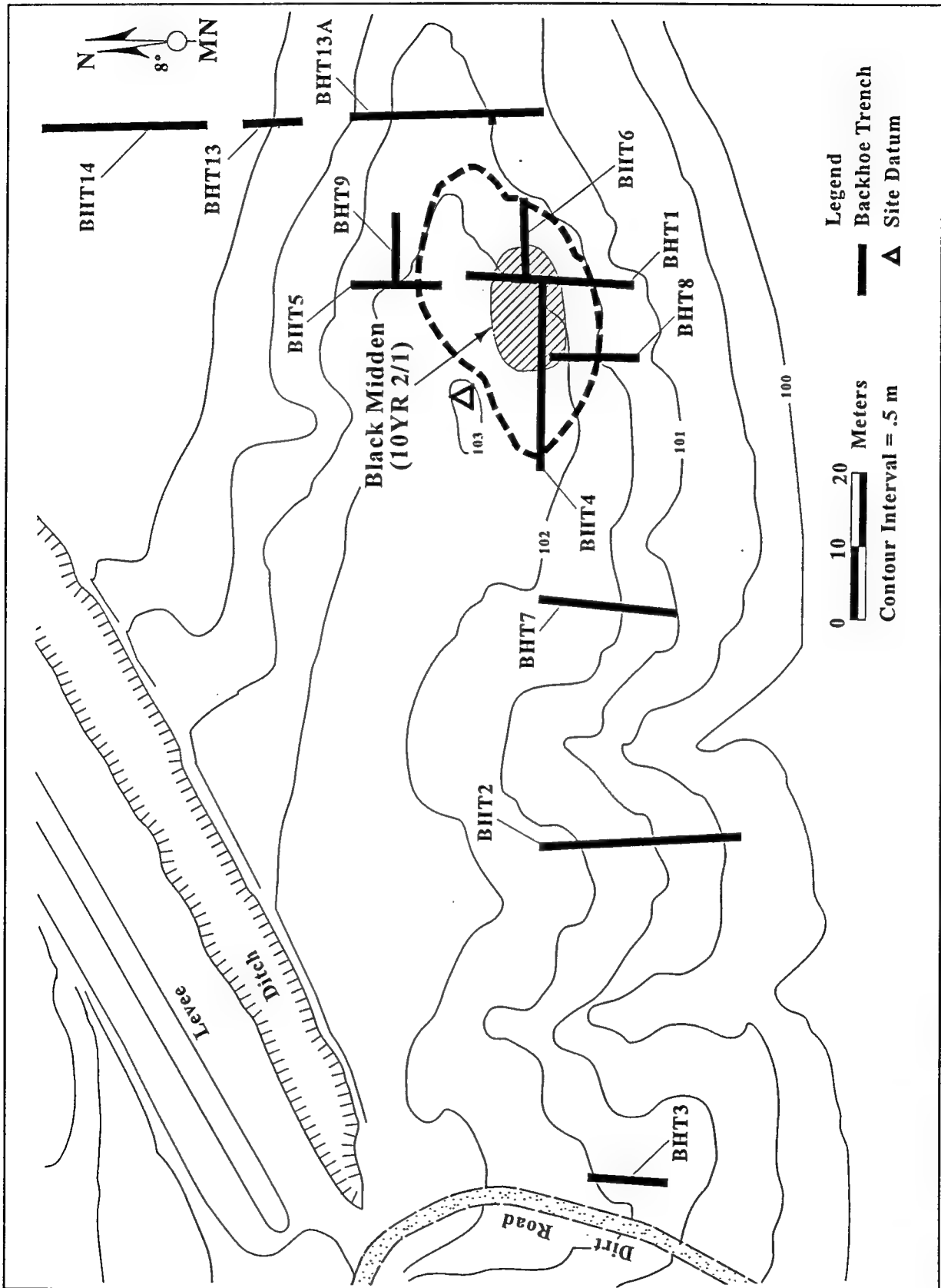


Figure 9-25. Map of Rise I. The heavy dashed line indicates the limits of the artifact concentration.

accumulation of household debris, then one means of determining the midden boundaries is to look for the presence or absence of bone in excavation units and backhoe trenches. However, the subtle shifts in soil color may be more useful for delineating the area of densest midden accumulation, especially if bone preservation is not good.

In BHT 1, bone was concentrated between the S6 line and the S13 line, ca. as far south as the southern extent of the black soil in BHT 8. According to Perttula (1987:5-12), no midden was found in BHT 13, but BHT 13A reportedly contained an intact midden with bone, Gary points, fire-cracked rock, lithic debris, and some ceramics. However, when the trenches were reopened during the 1987 testing program, and BHT13A-South was dug to search for the midden, no bone or artifact concentrations were observed. Therefore, this portion of the site does not appear to constitute a true midden deposit like that found in the other trenches. Further evidence corroborating this interpretation is the fact that Unit 16 from the 1972 testing program, which was nearly intersected by the east wall of BHT 13, had extremely low artifact densities.

The distribution of bone within the 1972 and 1987 excavation units suggests that the major midden deposit was west and southwest of BHT13A-South. Units 1, 2, and 11 contained the highest frequencies of bone, and Units 5, 18, and 22 yielded moderate amounts of bone, but some bone was also recovered from Units 3, 4, 6, 17, 19, 21, 65, and 66. This distribution suggests that the maximum extent of the midden stretched from the top of the rise just west of BHT13A-South, down along the southeast slope of the knoll, with the major midden accumulation falling to the southeast of the datum.

When viewed horizontally along the entire length of the trench, the A horizon soil color in BHT 4 shifted from black (10YR2/1) to very dark brown (10YR2/2) at the E7 line in the north profile and the E5 line in the south profile. In BHT 6, no changes in A horizon color were observed horizontally, indicating that the entire length of the trench fell within the midden. In BHT 8, the soil color changed from black (10YR2/1) to very dark gray (10YR3/1) at about the S15 line. Unfortunately, the trenches opened during testing (e.g., BHT 1, BHT 13, BHT 13A, and BHT 13A-South) had dried out by the time their profiles were mapped, obscuring the subtle color changes observed in the later trenches. On those trenches, the maximum extent of bone visible in the profile was used to demarcate the midden boundary, but it was not possible to delineate the limits of the black midden soil.

When the artifact frequencies, bone distributions, and soil colors from all units and trenches were compared, it became clear that the densest midden deposit, as defined by the overlap of dark soil color, high artifact, and high

bone content, was confined primarily to the area southeast of the site datum. This area extended from about S4 to S15 and from E5 to about E25. Encompassing this relatively small area was a larger area comprised of units with high artifact counts, but low bone frequencies and lighter soil. If the criterion of high artifact density alone suffices to define the limits of a midden, then the full extent of the midden must encompass Units 5, 17, 19, 22, and 66, near the crest of the rise where the artifact content was highest. However, for the purposes of this report, the smaller area is considered to be a true midden deposit, whereas this larger area with high artifact content is considered to be the primary locus of activity which includes the midden.

To define the boundaries of the larger area, the drop in the artifact content of units was plotted. Unit 9, west of the datum, had moderate to low densities for all artifact classes, and, Unit 10, further to the west, contained very few artifacts in comparison with most units on Rise I. Thus, the western half of the knoll clearly fell outside of the area of artifact concentration. Low artifact frequencies identical to those of Unit 9 were recorded for Unit 16, the easternmost unit, and no bone concentrations were observed in BHT 13A or 13A-South during the 1987 reevaluation of the site. Therefore, the boundary must have fallen west of these units. Unit 14, the northernmost unit, yielded moderate densities of lithic debris and fire-cracked rock, but low densities of all other artifact classes. Therefore, it too seems to have fallen outside of the limits of this area of artifact concentration.

Considering all of this data, the area characterized by high artifact content appears to have extended at least as far north as N7, but less than N15, and as far south as S15. Unit 24, with its relatively high artifact content, is considered to be the easternmost extent of the deposit. Thus, the eastern extent of the midden lies near the E35 line. The western extent of the artifact concentration extends at least as far as Unit 3 near the W10 line. Both the maximum extent estimated for the midden and that estimated for the area of highest artifact density are illustrated in Figure 9-25. The best extent for the artifact concentration is 800 m² (2624.6 ft²), and the soil bone midden is 200 m² (656.1 ft²).

Rise I Block

The Rise I Block was placed within the densest portion of the midden, characterized by black soil, high bone content, and high artifact frequencies. The small area encompassed by the block (only 2 x 2 m) made it impossible to identify some activity patterns. For instance, arrow and dart points occurred together in all units, but arrow points alone occurred within the Feature 18 fill.

This mixture of point types indicates that the deposit was created primarily by a mixture of Archaic or Early Ceramic period and Early Caddoan period occupations. The fact that a Catahoula-like arrow point was found in Feature 18 could indicate that this feature was created by the Early Caddoan occupation, but this evidence is tenuous.

The aborted bifaces presented an interpretable pattern, especially when compared with distributions of other artifact classes associated with lithic reduction, such as cores. For instance, the aborted bifaces clustered outside of Feature 18, in Units 69 and 71, as did most of the cores. Eleven aborted bifaces and nine cores were recovered from Units 69 and 71, whereas only three aborted bifaces and six cores were recovered from Units 68 and 70, in which Feature 18 occurred. This pattern suggests that lithic reduction was concentrated in the area surrounding Feature 18, even though the lithic debris distribution was evenly spread among all units. Two scrapers were found in the upper levels of Unit 68, providing evidence of hide working activity.

Finally, bone and baked clay were more concentrated in the upper levels of Units 69 and 71 (outside of Feature 18) than in Units 68 and 70 (encompassing Feature 18). This pattern suggests that Feature 18 was a hearth that was cleaned out for reuse periodically, with its contents dispersed around its perimeter. The distribution of artifacts within House 1 at Bird Point Island lends support to the interpretation of Feature 18 as a hearth. At Bird Point Island, the highest densities of baked clay inside House 1 occurred in two units adjacent to the central hearth, probably as a result of cleaning. In addition, the highest concentrations of bifaces and lithic debris occurred in bands surrounding the central hearth suggesting that stone tool maintenance was conducted around the hearth (Bruseh and Martin 1987c:176). This pattern fits well with the pattern described for bifaces in the Rise I block at the Lawson site. While these similarities to House 1 patterns do not clearly demonstrate that Feature 18 was a hearth surrounded by an activity area, they do lend support to this interpretation.

Horizontal Separation of Components

Radiocarbon dates are unavailable for most features at the site, and since most features are devoid of sherds, regardless of where they were located on the site, a lack of sherds does not necessarily imply that a feature dates to the Archaic period. Therefore, projectile point data served as the primary means for estimating the temporal affiliations of features. Lack of arrow points, especially in light of high dart point content, was used as a good indicator of an early temporal affiliation. Also, the

presence of tools made from novaculite was taken as an indicator of early temporal affiliation, since novaculite was widely traded during the Archaic (Early 1982:37), and because no tools made from this material were found at the Thomas site or Doctors Creek sites, both of which have major components which date later than the Archaic.

On top of the rise, components were mixed together. For example, expanding stem dart points were found in the same vicinity as later arrow points and ceramics, along with Hearth 2 (dated at 172 ± 101 B.C.) and an Early Ceramic period burial (Burial 1, dated at A.D. 210 ± 130). Similarly, a novaculite biface fragment was found in Unit 23 in association with ceramics. Evidence of early occupation was masked by the intermixture of early materials with later Early Caddoan materials. However, on other portions of the knoll, it appears that some degree of separation may exist between Archaic/Early Ceramic period deposits and later deposits. Based on the relative lack of arrow points, and presence of dart points, it appears that three portions of the rise may have been utilized more heavily during the earlier period of occupation: the area exposed by Transect 1 at the eastern end of the rise, the large roasting pits along the north slope of the rise, and Feature 25 along the western edge of the rise.

Transect 1 along the eastern edge of Rise I, appeared to contain the best evidence for early occupation with minimal mixture from later occupations. Even though no controlled excavation units were placed on this portion of the knoll, 15 features were excavated, so a fairly good sample was obtained. No ceramics or arrow points were recovered from these features, yet seven dart points were found. Feature 15 yielded six Gary points, and Feature 17 contained one Gary point.

The next area which appeared to have limited mixture with the Early Caddoan component was the area north of the Early Caddoan posthole and daub clusters where Features 28 and 29 were found and Unit 14 was excavated. No arrow points were found in Units 67 or 72 dug to investigate Feature 28, and only two sherds were found in the upper two levels. Unit 14, which would have been located adjacent to BHT 5 either within or immediately adjacent to Feature 28, was one of the few units on Rise I which did not contain ceramics. No artifact sample was obtained from Feature 29, but its similarity to Feature 28 in size and shape suggests that it probably dates from the same period. Based on this artifact evidence, it seems likely that these features resulted from Archaic or Early Ceramic period activity.

Finally, in Transect 2 at the western end of Rise I, evidence of early period activity was observed. The lack of ceramics and arrow points in Feature 25, and the presence of a biface made from novaculite, suggests that

it may have been used during an early occupation. Some later use of this part of the rise is suggested by the presence of Burial 6 in Feature 24, located 5 m (16.4 ft) southwest of Feature 25. Extended burials became more common during the Caddoan period, so subsequent occupations may have utilized this part of the rise too. However, occupation appears to have been quite limited on this end of Rise I during all periods of occupation, decreasing the chances for mixture of components.

If indeed, these three areas do represent relatively unmixed early components, the activities associated with the early occupations can be deduced from the assemblages recovered from the features. First of all, judging from their size and shape, Features 25, 28, 29, and possibly even 15 could be interpreted as roasting pits. Unfortunately, since so few flotation samples were processed and analyzed, there exists no macrobotanical data which can be used to address the roasting pit hypothesis. Macrobotanical data from Feature 15 indicated that *Psoralea* tuber may have been processed in it, so it may well have been a roasting pit. The tool types found in these three areas included dart points, scrapers, knives, and miscellaneous marginally modified flakes. These tools reflect a variety of domestic tasks associated with daily maintenance (i.e., processing animal and plant foods, cooking, hide preparation, some stone tool manufacture, etc.). However, none of these activities differ significantly from those indicated for the later component.

Rise II Block

During the 1972 season, Units 7, 8, and 13 were dug to sample Rise II. During the 1987 testing, it was sampled by two test units (Units 25 and 26) and a backhoe trench. Finally, the midden was sampled by the 12 units within the Rise II Block.

On the top of Rise II, Unit 25 had low artifact densities, but yielded one arrow tip, two biface fragments, one sidescraper, one multiple use unifacial tool, and a single sherd. The scraper and unifacial tool indicate that some hide working may have taken place on this part of the site, but it is difficult to draw conclusions based on so little data. The single sherd suggests that preceramic occupations may have been more common on this portion of the knoll. Further downslope, near S15, Unit 8 yielded very low artifact frequencies for all artifact classes. The low artifact densities indicate that the top and upper slope of Rise II was never a focus of intensive activity.

Further downslope, at S23, Unit 7 yielded a moderate density of fire-cracked rock and a very high density of bone. Unit 13 at S30, had somewhat lower frequencies for all classes. These units indicated that the principal midden

deposit on Rise II was present along the south slope. During the 1987 season, BHT 2 was dug through the center of Rise II to determine the extent of the midden. The maximum extent was found to be 18.5 m, with the north-south limits running from S15-33.5. The east-west limits were not determined.

The midden was characterized by dark grayish brown silty loam with excellent preservation of bone, shell, and charcoal. Two vertical-walled flat bottomed pits, one intrusive into the other, were observed in the west profile near the S22 line, and three smaller, less distinct depressions identified as possible postholes were observed, one at S16.5, one at S29.7, and one at S30.8. Unit 26 yielded one endscraper, one contracting stem dart base, one Alba-like point, two arrow tips, one aborted biface (early), 10 sherds, and large quantities of bone and shell. The high density of artifacts within this unit guided the placement of the Rise II excavation block.

Within the Rise II Block, Unit 53 contained only dart points, Unit 61 contained one arrow point, and no points were recovered from Units 62 and 63. Otherwise, darts and arrows were intermixed throughout the block. Bifaces were evenly spread across the block, with specimens occurring in all of the units (18 aborted bifaces, and two knives). Most of the unifaces (e.g., two endscrapers, five sidescrapers, and three denticulates) on the other hand, were confined to the northern half of block.

Units 56, 57, and 61 had the highest ceramic frequencies, yielding 25, 28, and 25 sherds, respectively. In addition, Units 56 and 57 also had very high densities of bone, baked clay, and shell. This trend suggests that a shallow refuse-filled pit that was not detectable by soil color changes may have been present in Units 56 and 57. Only two features were definitely identified within the block, and these occurred at the extreme northern end in Units 52 and 53. Unfortunately, their function could not be distinguished. However, aside from the five possible cultural features that were observed as dips in the A horizon in the profile of BHT 2, another feature was noted nearby. Burial 3 was located adjacent to the block in Transect 3.

The Rise II scrapers and knives were probably used for scraping hides or vegetable materials, and perhaps butchering game. The abundance of aborted bifaces, coupled with the presence of cores in all units, indicates that lithic reduction also took place in this area. Since no postholes and few recognizable features, aside from Burial 3, were found in the Rise II Block, little more can be concluded about the use of this rise.

No evidence for the horizontal separation of components was observed within the Rise II Block, since dart points and arrows were intermixed. However, when Rise II projectile points were compared with those from

Rise I, evidence for some degree of horizontal separation of components between the rises was noted. For example, the ratio of dart points to arrow points on Rise II was the inverse of that observed on Rise I, with a ratio of 34:11 for Rise I versus 10:26 for Rise II.

Although dart points continued to be utilized during the Late Prehistoric period, and therefore, do not always reflect early occupation, arrow points are indicators of late occupation. The fact that almost three times as many arrow points as dart points were recovered from Rise II indicates that very little, if any, utilization of Rise II occurred during the early occupations of the Lawson site.

Rise III Block

The kinds of activities which occurred on Rise III are very difficult to assess on more than the most rudimentary level because of a lack of data. Only Units 50 and 51 yielded tools which could provide information about the activities conducted along this portion of the site. Unit 50 yielded one dart tip, two biface fragments, two sidescrapers, and six marginally modified pieces (e.g., one with a concave working edge and five with straight to convex edges).

Unit 51 contained one arrow fragment, two biface fragments, one denticulate, and two marginally modified pieces (e.g., one with a concave working edge and one with a straight to convex edge). No sherds were found in either of these units or in any of the 30 x 30 cm (11.8 x 11.8 in) units.

Scrapers are generally associated with hide working, the denticulate may have been used for stripping bark, the marginally modified pieces were probably used for scraping, and the bifaces could have been used for either cutting or scraping. Thus, several different activities are indicated, but it is not possible to delineate activity areas or relate these activities to specific periods of site occupation.

The lack of sherds on this portion of the site suggests that preceramic occupations may have been more prevalent at this end of the site, but the presence of an arrow point tip indicates that some occupation occurred during the Early Ceramic or Early Caddoan periods.

Conclusions

To summarize, the horizontal artifact distributions were useful for suggesting general patterns of activity, and areas where components may have been horizontally separated. Together with the feature distributions, they showed that most activity at the Lawson site during all periods of occupation was concentrated on top of, and along the south slope of, Rise I. They also indicated that

the next major concentration of activity occurred near the center of the south slope of Rise II during the Early Ceramic to Early Caddoan periods, and that relatively little activity took place on Rise III during any period.

The distribution of tools indicated that a variety of domestic tasks were conducted all across the site, including processing animal and plant foods, cooking, hide preparation, and stone tool manufacture. Cooking and roasting activities were marked by the high densities of fire-cracked rock and baked clay within the Rise I midden, as well as by the presence of what appear to have been large roasting pits. The distributions of bone and artifact concentrations were used to map the extent of the midden on Rises I and II, and changes in soil color were used to define the densest part of the Rise I midden.

SUMMARY AND INTERPRETATIONS

An attempt was made to address five problem areas with data from the Lawson site: (1) assessment of chronology, (2) definition of architectural and cultural features, (3) identification of intrasite activities, (4) description of subsistence behavior, and (5) assessment of seasonality and duration of occupation. Some of these problem areas could not be addressed adequately with the Lawson data. For instance, those flotation samples that were analyzed produced little due to poor floral preservation. As a result, the assessment of subsistence behavior is extremely limited. On the other hand, sufficient data were recovered to address problems related to the study of chronology, the definition of features, and intrasite functional variability.

First, a brief summary of the chronological data (i.e., radiocarbon dates, and projectile point types) is presented. Then the cultural features and spatial patterning associated with the Archaic/Early Ceramic and Early Caddoan occupations are discussed. Finally, the floral data are used to assess subsistence strategies and seasonality of occupation.

Chronology

Some colluvial aggradation may have occurred along the base of the terrace slope as a result of erosion caused by historic period agricultural practices, but it did not affect the archaeological deposits investigated during any of the field seasons. No evidence for the vertical separation of components was noted anywhere on the site. On the contrary, the top of each rise appeared to be deflated, resulting in a vertically mixed stratigraphic profile.

Radiocarbon dates demonstrate that the Lawson site was formed by recurrent occupations spanning the course

of several centuries, from the Archaic or first part of the Early Ceramic period into the Caddoan period. The period of site occupation responsible for the majority of artifacts in the midden deposits on both Rises I and II appears to have been the Early Caddoan period, based on radiocarbon dates from postholes within the Rise I midden.

The earliest occupation documented at the Lawson site was marked by the presence of Archaic period expanding stem dart points. A Darl point and a Yarbrough point were recovered during the 1972 testing season, along with a Godley-like dart point, and a dart point base which looked like the kind found on Martindale points. An additional expanding stem dart point was found during the 1987 mitigation program. Judging from their similarity to these established point types, these dart points could range in time from the Archaic up to the Early Ceramic period.

The next period of occupation, the Early Ceramic period, was documented by two radiocarbon dates. The 1972 sample from Hearth 2 yielded a calibrated radiocarbon date of 172 B.C. \pm 101 (Tx-1961, corrected), and charcoal from Feature 1 (Burial 1) yielded a calibrated date of A.D. 210 \pm 130 (SMU-1878, corrected). Based on these two dates, the maximum range for this early occupation fell between 273 B.C. and A.D. 340, during the Early Ceramic period (ca. 200 B.C.-A.D. 700). Of course, this date range is based on a limited sample size, so it is possible that sporadic occupation continued throughout the Early Ceramic period, but that only indications of the early occupation were recovered.

The fact that a hearth and a burial were present at the Lawson site during the Early Ceramic period is evidence that the Early Ceramic period occupation was more substantial than the Archaic period occupation. However, it was difficult to assess the relative intensity of Early Ceramic occupation due to the intermixture of components on top of Rise I. It was not possible to isolate specific projectile point types limited solely to this period, since the published date ranges for the arrow point styles identified at the site stretched from the latter portion of the Early Ceramic period well into the Early Caddoan period. Presumably, most material in those areas falling outside of the midden which were marked by the presence of Gary dart points and a lack of arrow points dated to the Early Ceramic period. However, some intermixture with Archaic components undoubtedly occurred in these areas, complicating the assessment of occupation intensity for each period.

An intensive Early Caddoan occupation was documented by two radiocarbon dates from postholes on top of Rise I: A.D. 1035 \pm 50 (SMU-1954, corrected) and A.D. 1070 \pm 60 (SMU-1958, corrected). Based on the

maximum range of the standard deviations, this occupation occurred sometime between A.D. 985-1130. Several other postholes and daub concentrations were related to these dated postholes, suggesting that structures were built during the Early Caddoan component. The evidence that structures were constructed during this period, coupled with the lack of structural remains associated with earlier components, suggests that the most intensive occupation of the site occurred during the Early Caddoan period. Logically, the most lengthy or intensive occupation would have deposited the greatest quantity of refuse. Therefore, even though some intermixture with materials from earlier components undoubtedly occurred, the midden is believed to date primarily to the Early Caddoan period. Most of the ceramic and arrow point types found within the midden could have been used during either the Early Ceramic or Early Caddoan periods, but it seems more likely that the midden accumulation was related to the occupation responsible for the postholes and artifact concentrations on top of the rise.

No radiocarbon dates or projectile point types indicative of occupation post-dating the Early Caddoan period were recovered. However, as at the Doctors Creek site, evidence for late occupation was marked by small quantities of grit tempered and shell tempered wares with punctations and engraving.

Cultural Features

Cultural features recognized at the Lawson site included postholes, pits of various shapes and sizes, large roasting pits, hearths, artifact clusters, and graves. On Rise I, three flexed burials, one cremation and some human teeth were found, and on Rise II, one extended burial was found. No grave goods were associated with any of the interments. No house patterns were recognized among the distributions of postholes, but the localized occurrence of postholes and pole-impressed daub provides indirect evidence that a structure, or structures, had been constructed. Two hearths, 29 pit-like features, and 10 postholes were assigned numbers during the course of the 1972 and 1987 investigations.

Interpretations of feature function were complicated by the fact that cultural materials deposited within the general midden entered into feature fill by means of secondary deposition. As a result, only those cultural features which contained inordinately high percentages of certain artifact classes could be assigned a function. Feature 18, for example, contained a very high quantity of charcoal, charred nutshell, and a moderate amount of baked clay, so it was classified as a hearth. Size and shape were also used for classifying some features, such as postholes and roasting pits.

No structures or features could be directly related to the Archaic period occupation. No radiocarbon dates older than 172 B.C. \pm 101 were obtained. However, based on their lack of arrow points, high dart point content, and presence of tools made from exotic lithic resources, Features 15, 25, and 28 are believed to date to either the Archaic or Early Ceramic periods. Feature 29, due to its morphological similarity to Feature 28, may also have been the result of an early occupation. The lack of arrow points and ceramics from the features at the eastern end of Rise I suggests that late period occupation was more limited there, and implies that more features there are related to early occupations. However, this interpretation is based on sketchy data and cannot be demonstrated conclusively. Since it is likely that some late features existed on that portion of the site, and there is not enough data available to assess which components the various features belong to, no firm conclusions can be made regarding the use of the site during the Archaic period.

Features dating to the Early Ceramic period included Feature 1 (Burial 1), and Hearth 2. No other features related to this occupation could be positively identified. Since none of the projectile point type recovered from any of the features had temporal affiliations solely limited to the Early Ceramic period, and no true Early Ceramic types were recovered, there is no means of detecting these components. The presence of Williams Plain ceramics may indicate an Early Ceramic occupation; however, due to the lack of contextual associations, this is tenuous.

Features dating to the Early Caddoan period included structural remains. Postholes 1 and 3 yielded synchronous radiocarbon dates falling near the middle of the range defined for the Early Caddoan period. Presumably, Postholes 2, and Postholes 4-7 also date to this period, due to their close proximity and morphological similarity to the dated postholes. Although no radiocarbon dates are available for other features, some are estimated to be of Early Caddoan age on the basis of their association with diagnostic artifacts. For instance, the presence of postholes and daub implies that habitation structures were present, which in turn, implies a more settled existence with an increase in refuse disposal, creating the midden present on Rise I. Since Feature 18 was situated within the darkest portion of the midden, it probably dates to the Early Caddoan period. Most of the Rise II midden deposit is believed to date to the Early Caddoan period because it was dominated by arrow points, with only a few dart points present. The fact that Rise I, which had two dated Early Ceramic contexts, yielded far more dart points than arrow points suggests that Rise II, with its low dart point count, was used primarily during the Early Caddoan period. Therefore, Features 3 and 4 on Rise II probably date to the Early Caddoan period.

Subsistence

If, as hypothesized, Feature 15 actually represented an Archaic or Early Ceramic deposit, then the diet at that time included hickory nuts and *Psoralea* sp. tubers. If Features 3 and 18 actually dated to the Early Caddoan period, as hypothesized, then the diet consisted of wild plants including hickory nuts, pecans, acorns, and *Psoralea* sp. tubers, as well as wild animals. The major difference between the hypothesized early and late occupations was that the Early Caddoan diet was supplemented to some degree by domesticated squash (*Cucurbita* sp.).

However, no radiocarbon dates were available for the features from which floral and faunal remains were analyzed, and the sample size was very small (i.e., macrobotanical remains from only eight features were analyzed), so the temporal estimates for these features are highly speculative. Since these estimates are tenuous, and none of the other features yielding floral or faunal data can be placed within a chronological framework, it is impossible to assess changes in subsistence strategies over time. Therefore, the notion that the use of squash was primarily an Early Caddoan period phenomenon might well be completely artificial; it is presented here merely as a possibility that might be considered in future research. The fact that some squash rind was found in an Early Ceramic period context at 41HP137 (see Appendix G) casts doubt on this hypothesis, but more information is needed before the chronological placement of squash can be firmly established for East Texas.

Using the floral and faunal data, general trends in the subsistence pattern can be presented, but these data probably span all periods of major occupation, so these trends may represent a composite of different subsistence strategies dating to different periods. On a broad level, the same general pattern of subsistence observed at other Cooper Lake sites was observed at the Lawson site. The diet was dominated by deer, turtle, rabbit, hickory nuts, pecans, acorns, and tubers; with squash supplementing the diet at some unknown point in time.

No maize was found in the few samples that were analyzed from the Lawson site, apparently contributing little to the diet of the Lawson site inhabitants, at least during the seasons that they occupied the site. It is impossible to state with assurance that maize was never important, since the sample size was so small and the floral preservation was so poor. Also, year-round occupation has not been demonstrated for this site, and other sites with sandier soil suitable for agriculture may have been occupied during the summer months.

The subsistence pattern observed at Lawson, like that at other sites in Cooper Lake, was very similar to that

observed among assemblages from sites in the Richland Creek drainage. At Richland/Chambers Reservoir, it was hypothesized that a specialized adaptation to the Post Oak Savannah had evolved in which local human groups became very adept at exploiting the seasonally abundant wild plant and animal foods found in that environment. Roasting pits were identified which are believed to have been used to process these foods for long term storage. As previously stated, similar roasting pit features were found at the Lawson site (Features 25, 28, and 29), so it is possible that this same type of adaptation to the Post Oak Savannah was also developed along the Sulphur River drainage.

Intrasite Activities

The artifact content of the excavation units, the distributions of bone, and the extent of black organically enriched soil were used to delineate the midden deposits on Rises I and II. On Rise I, the midden appears to have extended at least as far north as N7, but less than N15, and as far south as S15, whereas the eastern extent of the midden fell along the E35 line, and the western extent continued at least as far as the W10 line. However, the area of darkest midden soil extended westward only to the E5 line. The Rise II midden extended 18.5 m, with the north-south limits running from S15 to S33.5. The east-west limits were not discernable from the limited excavations that were conducted.

The artifacts and features indicate that the midden areas on both Rise I and Rise II were used for a wide variety of activities including lithic reduction, hide working, and possibly butchering and bone working. Clusters of aborted bifaces and cores indicate that lithic reduction took place on both rises, but the Rise I midden contained the largest and densest cluster of lithic debris found at the site, indicating that it was the primary locus of lithic reduction. Scrapers associated with hide working, bifaces used for cutting, and graters associated with bone working were also found.

The presence of hearths and other features containing charred floral and faunal remains indicates that food was prepared on Rise I. Hearths 1 and 2, and Feature 18 provided evidence for these activities. Feature 18, from which a flotation sample was analyzed, contained a broad variety of plant foods. In addition, features interpreted as large roasting pits were found along the northern edge of the Rise I midden, and outside of the midden at the western end of the rise. These pits are believed to have been used to process plant foods for long term storage.

Substantial occupation occurred on Rise I during the Early Caddoan period, as evidenced by postholes dating between A.D. 985-1130 and high quantities of artifacts in

the area surrounding these possible structures. Early radiocarbon dates and high dart point frequencies indicate that Rise I was also the principal location for earlier occupations during the Archaic and Early Ceramic periods. In contrast, Rise II contained fewer dart points and numerous arrow points, so it did not appear to have been used to a significant degree during the earlier periods of occupation.

Very few artifacts were recovered from Rise III, in comparison with the other rises. A few scrapers, denticulates, bifaces, and marginally modified unifaces were recovered. These tools suggest that some degree of hide working, bark stripping, and cutting or scraping occurred on Rise III. Since less material was found on Rise III than on the other two rises, it seems likely that less activity was conducted there. The lack of sherds on this portion of the site suggests that preceramic occupations may have been more prevalent at this end of the site, but the presence of an arrow point tip indicates that some degree of occupation occurred during the Early Ceramic or Early Caddoan periods.

Seasonality And Duration Of Occupation

Floral and faunal data were relatively meager in comparison with other sources of data, making the assessment of seasonality difficult. On the basis of the limited floral sample, the site was occupied during both the spring and the fall. The principal plant foods in the assemblage are complementary from the standpoint of harvesting; spring species, such as *Psoralea* sp., and fall species, like nuts and acorns, are present together in the assemblage. All could have been stored as well. Turtle and mussel would have been easily exploited in the summer or fall, when the creeks were low. Deer could have been taken at any time during the year, since no clear indicators of seasonality were found; however, they were probably taken in the fall when deer congregate in areas with high mast yields.

Whether or not the Early Caddoan component was characterized by permanent settlement or seasonal occupation is unknown. The substantial midden and presence of postholes suggests that relatively long term occupation occurred, but recurrent seasonal occupations could have produced the same sort of deposit. The fact that no permanent houses were found is the best evidence arguing against permanent occupation. The lack of substantial structures suggests that shorter seasonal occupations occurred.

It was impossible to determine differences in the seasonality of occupation over time because few features or artifacts could be definitely assigned to a specific

period of occupation. It is assumed that Archaic occupations represented brief encampments of mobile hunter/gatherers because so little material assignable to the Archaic period was recovered. Early Ceramic period occupations were more intensive, or more frequent, than Archaic period occupations, as evidenced by two radiocarbon dates and the presence of a burial.

Finally, the Early Caddoan period occupation appears to have been the most intense. It is assumed to have been responsible for the concentration of postholes and daub on top of Rise I, and almost certainly for the midden deposits on Rises I and II.

SUMMARY OF PREHISTORIC ARCHAEOLOGY RESULTS: THE 1987 FIELD SEASON

Daniel E. McGregor

10

This chapter summarizes the results of survey, testing, and intensive excavations of prehistoric sites conducted by SMU during the 1987 field season at Cooper Lake. These investigations were restricted to an area of ca. 1902.8 ha (4700 ac) surrounding the proposed dam embankment. An intensive on-the-ground survey along with limited backhoe trenching in the modern floodplain provided an updated inventory of prehistoric cultural resources within this area. Test excavations were conducted to effectively evaluate and assess the National Register of Historic Places eligibility of sites to be adversely impacted by embankment construction activities. Intensive data recovery subsequently was carried out at four prehistoric sites (41DT80, 41DT124, 41HP78, and 41HP137).

The results of this research are an important addition to a growing body of data on the prehistoric archaeology of Cooper Lake. Previous research has included survey and excavations by the River Basin Surveys (Moorman and Jelks 1952) and the Texas Archeological Salvage Project (Johnson 1962), a multi-year program of investigations by SMU in the 1970s (Hyatt and Skinner 1971; Hyatt et al. 1974; Hyatt and Doehner 1975; Doehner and Larson 1978; Doehner et al. 1978), and work by North Texas State University in 1986 and 1987 at sites within the 350.2 ha (865 ac) dam alignment (Perttula 1987). A proper synthesis of Cooper Lake

archaeology would involve the integration of the results of these earlier studies with those of our present research, as well as those of NTSU's ongoing study of the Hurricane Hill site (41HP106). Unfortunately, such a synthesis is beyond the scope of the present report. Instead, this chapter offers a descriptive summary of our results to date.

SURVEY RESULTS

The survey of ca. 1902.8 ha (4700 ac) surrounding the proposed dam embankment resulted in the discovery of 33 previously unrecorded prehistoric sites and an additional five predominantly historic period sites that also contained minor prehistoric components (Table 10-1). In addition, 10 prehistoric sites recorded previously within this survey area were relocated and reevaluated. The information collected during the survey and subsequent limited test excavations included some evidence for prehistoric occupation dating from the late Paleo-Indian or Early Archaic through the Late Caddoan periods. A glass trade bead from site 41DT111 indicates continued occupation during the Protohistoric or Contact period as well. However, as with earlier investigations at Cooper Lake, sites dating to the Late Archaic, Early Ceramic, and Early Caddoan periods were by far the most common.

TABLE 10-1
Known Prehistoric Sites Located Within The 1987 Survey Area

Previously Recorded	Newly Recorded		Newly Recorded Historic Sites with Minor Prehistoric Component
41DT34 (X41DT16)	41DT106	41DT131	41DT126
41DT67 (X41DT53)	41DT108	41DT132	41DT135
41DT68 (X41DT54)	41DT109	41DT133	41HP141
41DT71 (X41DT57)	41DT110	41DT134	41HP144
41DT80 (X41DT68)	41DT111	41HP134	41HP145
41DT81 (X41DT69)	41DT112	41HP135	
41DT82 (X41DT70) ¹	41DT113	41HP136	
41DT83 (X41DT71)	41DT114	41HP137	
41HP6	41DT115	41HP138	
41HP78 (X41HP7)	41DT116	41HP139	
41HP104 (X41HP36)	41DT117	41HP140	
41HP105 (X41HP37)	41DT124	41HP147	
41HP116	41DT127	41HP148	
41HP118	41DT128	41HP149	
	41DT129	41HP150	
	41DT130		

¹ Site 41DT82 could not be relocated despite repeated efforts.

SOIL TYPE ASSOCIATIONS

One of the more consistent aspects of prehistoric site location was their strong association with the sandier soil types within the survey area. North of the South Sulphur River in Delta County, these sandier soil types included those mapped as Annona loam, Crockett loam, Freestone-Hicota complex, and Woodtell loam (Ressel 1979). In Hopkins County, the Woodtell loam series had a rather restricted distribution within our survey area, where clay and clay loam soil types (i.e., Bazette clay loam, Ellis clay, Nahatche, and Leson clay) predominate (Lane 1977). When the distributions of these soil types and the known prehistoric sites are mapped (Figure 10-1), the association is fairly clear.

The most striking illustration of this site-to-soil type association is in the Hopkins County uplands south of the river. Prehistoric sites cluster noticeably on the spatially restricted Woodtell loam soils. Although most of the south valley wall consists of clay and clay loam soils, very few prehistoric sites were discovered in those areas. North of the river, the sandier soil types cover most of the

terraces and elevated knoll landforms paralleling the major drainages. Because prehistoric sites are usually found in these kinds of physical settings, the association of known sites with these sandier soils is not as obvious. That is, it is not clear whether these site locations were selected for their soils, or simply because they represented elevated land surfaces in close proximity to a major drainage. Despite this question, it is still clear that site locations correlate well with the distribution of sandier soils in the Delta County portion of the survey area as well.

INTENSIVE SHOVEL TESTING

In designing our survey methods it was decided that a sample of the survey area would be subjected to more systematic, intensive shovel testing than that which was conducted during the standard pedestrian survey (see Chapter 2). This was done to provide a check on the effectiveness of the less labor intensive, pedestrian survey approach. In addition to the more systematic placement of shovel tests on a compass oriented, 20 m (65.6 ft) grid,

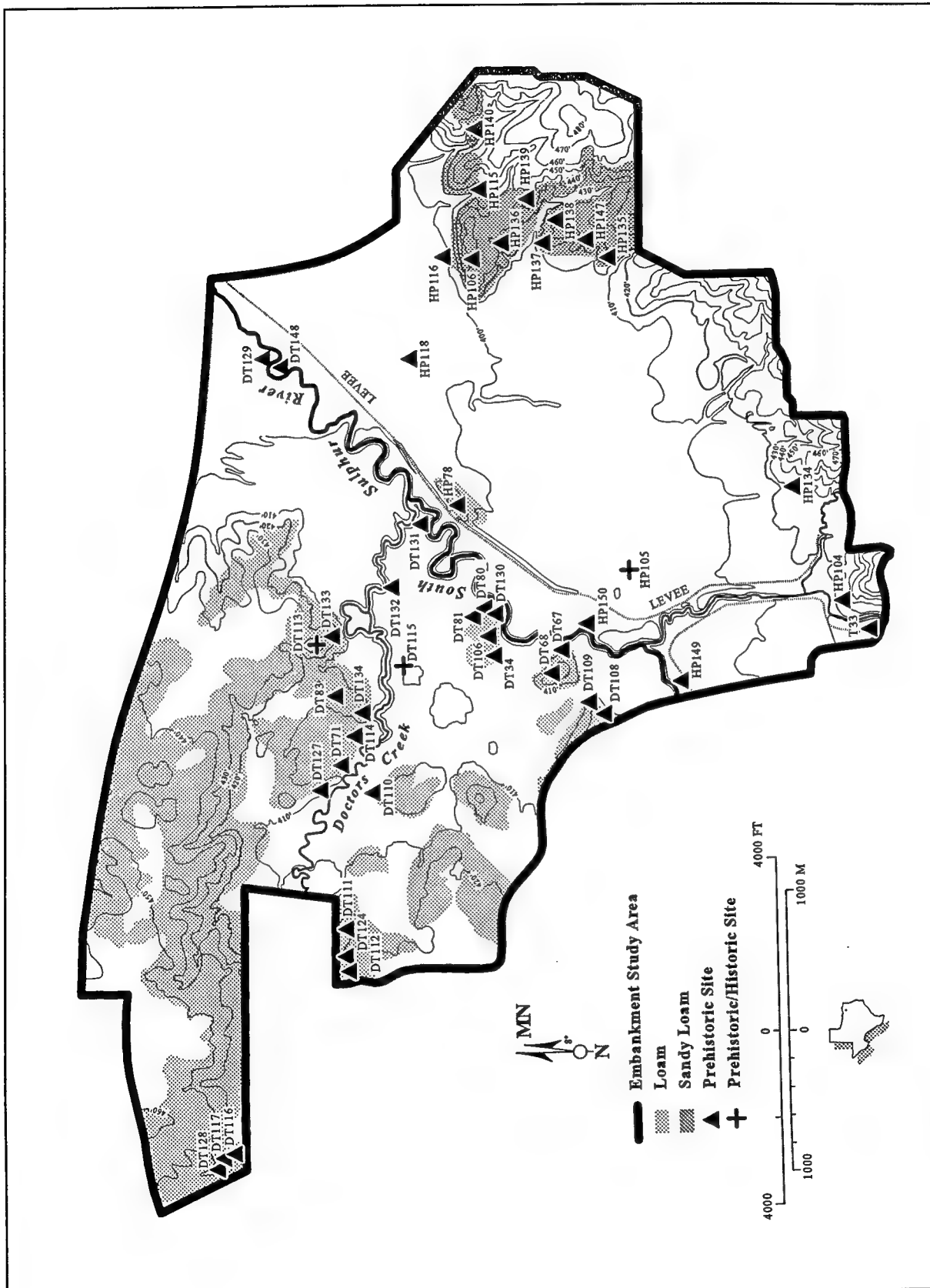


Figure 10-1. Distributions of loam and sandy loam soils and known prehistoric sites.

portable .635 cm (.25 in) mesh screens were used to sift the excavated fill. During the pedestrian survey the fill was not screened, but was troweled in search of artifacts. A comparison of results was needed to evaluate whether the increased labor costs of intensive shovel testing were justified by a significant improvement in site discovery.

When the strong association between site location and soil type discussed above became clear, it was decided to concentrate the intensive shovel test tracts in these areas of high site potential. Ten of these tracts were selected, resulting in the recording of three previously unrecorded sites (41DT114, 41DT127, and 41DT134). All three of these sites were located on terrace landforms north of Doctors Creek. They were small in area and exhibited relatively low artifact densities. The circumstances of their discovery within the context of intensive shovel testing are important to our evaluation.

In all three cases, the site's discovery was the result of a judgmental decision to extend particular shovel test transects beyond the chosen tract and into a suspected site location. All three sites were on low rises at the end of a terrace and close to the channel of Doctors Creek. These were the kinds of locations that were examined closely during the pedestrian survey and earlier shovel tests were in fact observed at two of these sites (e.g., 41DT114 and 41DT127). Although the intensive shovel test transects were useful in a few cases for defining the limits of known sites, none of the newly discovered sites were unexpected. These three sites should have been discovered in the course of the pedestrian survey.

It is believed that the primary reason they were missed during the pedestrian survey was our failure to screen the fill of shovel tests. Subsequent test excavations at these sites demonstrated that all contained a very low overall density of artifacts. Site 41DT127 did contain a high density concentration but this was restricted to a relatively small area. With low density sites such as these three, it appears that discovery may depend on whether the shovel tests are troweled or screened. It is thought that with the use of screens in conjunction with shovel testing, our pedestrian survey methods could yield results that are equivalent to those obtained by the more labor intensive, systematic shovel testing.

FLOODPLAIN ALLUVIAL SITES

The major disappointment of the Embankment area survey was our failure to identify *in situ* buried archaeological deposits associated with the late Pleistocene-Holocene alluvial sediments of the floodplain. Previous geoarchaeological research had documented alluvial deposits spanning this period in the depositional history of the Cooper Lake area, and in some cases these

sediments contained buried cultural materials (Bousman, Collins, and Perttula 1988). Our attempts to identify archaeological sites in these contexts included the survey of ca. 13 km (8 mi) of the channels of the South Sulphur River and its two major tributaries, Doctors and Moore creeks. Although seven sites were recorded during this channel survey, none of these showed definite evidence of *in situ* archaeological deposits buried within late Pleistocene or Holocene alluvial sediments. Buried artifacts were documented at only one of these sites (41HP150), but here they were confined to the uppermost sediments of a much older landform.

The channel survey was hampered by extensive slumping of the bank sediments and by dense vegetation along some sections. The actively eroding cutbanks that are most conducive to buried site detection were rare within the survey area. More favorable conditions were found along a channelized section of the Middle Sulphur near the upper end of the reservoir, well outside of the Embankment survey area. During geoarchaeological reconnaissance a site was found at which *in situ* artifacts were observed in the south bank ca. 4 m (13.1 ft) below the surface of the floodplain (see Appendix E). This site is less than .8 km (.5 mi) downstream from the Ragland North Locality 1, where Bousman, Collins, and Perttula (1988) reported stratified archaeological remains in the north bank of the Middle Sulphur River.

In addition to the channel survey, a backhoe was used to search for buried sites. Backhoe trenches were placed adjacent to a former channel of the South Sulphur River along which a buried site (41HP118) had been recorded previously by NTSU. Limited test excavations at this site identified a buried soil containing lithic artifacts ca. 75 cm (29.5 in) below ground surface (Perttula 1987:5-29). A similar buried soil zone was identified in our backhoe trenches, where it varied between 50-150 cm (19.68-59 in) below the surface of the floodplain. However, no archaeological sites were discovered during this exploratory trenching.

Our own test excavations at 41HP118 (see Chapter 3) provided a radiocarbon date on humates from this buried soil zone. A sample from the upper 10 cm (3.94 in) of this buried soil (75-85 cm [29.5-33.46 in] below surface) yielded a date of 2980 ± 30 B.C. (SMU 1970, uncorrected). Unfortunately, the validity of this date is suspect since a charcoal sample from 135 cm (53.1 in) deeper in the same stratigraphic profile yielded a more recent date of 2860 ± 70 B.P. (SMU 1883, uncorrected). It is suspected that this buried soil zone may contain humates redeposited from older soils within the drainage, thus producing a falsely old radiocarbon determination with respect to formation of the zone itself. It is conceivable that such humate dating problems may be

relevant to Holocene alluvial sediments in general. This result should caution against the uncritical acceptance of the results of recent geoarchaeological investigations at Cooper Lake (Bousman, Collins, and Perttula 1988) where late Pleistocene and Holocene depositional stages have been correlated through soil humate dating. Proper sampling procedures should be employed with humate dating of soils and sediments. Soil humates may be secure, but a column or sampling procedure with 2-3 samples (i.e., top, middle, and bottom) from the soil profile is preferred. However, even if a controlled column approach is employed, this only relates to relative soil formation. If humates are derived from older parent material, they will be older than the time when these sediments were deposited.

PREHISTORIC SITE DIVERSITY

One reason for an intensive survey of the dam embankment impact area was to provide comparative data which could be used to evaluate the earlier surveys at Cooper Lake (Moorman and Jelks 1952; Hyatt and Skinner 1971). It was recognized that historic period, non-aboriginal sites had been neglected almost completely, despite six radiocarbon assays within this period. The representativeness of the sample of known prehistoric sites was also in need of evaluation. The earlier surveys did not provide complete coverage of the reservoir area, and it is not known what portion actually was examined. It is thought that documenting the full range of site variability with respect to age, size, geographic location, and geological context is more important than simply increasing the number of recorded sites. Unless significant new data can be obtained through additional survey, this work effort might be expended more productively on another aspect of research.

The present survey increased the number of recorded prehistoric sites within this 1902.8 ha (4700 ac) area from 14 to 45. An additional five newly recorded sites were primarily historic in age, but contained minor prehistoric components (41HP141, 41HP144, 41HP145, 41DT126, and 41DT135). With the exception of 41DT124, most of the newly recorded sites were relatively small in area and exhibited comparatively low artifact densities. The largest and most intensively occupied sites in our survey area (41HP78 and 41HP105) were known from the 1970 survey. The river channel survey demonstrated that artifacts are being eroded from the Holocene age sediments of the floodplain. While we were unable to isolate any new *in situ* archaeological deposits in these contexts, buried alluvial sites are known from NTSU's and our own work at 41HP118 (see Chapter 3) and from

geoarchaeological studies at Cooper Lake (Bousman, Collins, and Perttula 1988).

As might be expected, it appears that the earlier survey work by SMU was most successful in locating the larger and more intensively occupied sites. Within the 1902.8 ha (4700 ac) area considered here, Lawson (41HP78) and Cox (41HP105) were the prominent examples of this kind of site. Both sites were located on large remnant knoll landforms in the floodplain south of the South Sulphur River and showed evidence of occupation over a long time span. Their primary components have been attributed to the Early Ceramic and Early Caddoan periods.

Evidence for less intensive occupations during the Archaic period also was recovered from both sites. Excavations at these sites have identified well preserved midden areas, a variety of cultural features including human burials, and a probable house structure at Lawson.

Several other sites at Cooper Lake may share many of these same characteristics. These include Hurricane Hill (41HP106), Manton Miller (41DT1), Luna (41DT52), and Arnold (41HP102). Repeated and intensive occupations over relatively large areas have made these sites highly visible. Therefore, it is likely that at most a representative sample of this site type has been obtained during the earlier surveys at Cooper Lake.

Also well represented in the earlier survey results was a group of smaller sites located on low knolls adjacent to the South Sulphur river (i.e., 41DT34, 41DT67, 41DT80, and 41DT81). These sites were relatively small in area, being limited by the small size of the knolls themselves. Sites 41DT67, 41DT80 (Thomas), and the newly discovered 41DT106 contained important midden deposits in which substantial amounts of animal bone and mussel shell were preserved. They appear to represent actual "midden mounds" in that the height of these knolls has been enhanced by the accumulation of midden debris. Geological investigations (Appendix E) indicate that active bone leaching has occurred at these temporally circumscribe sites (A.D. 800-1200).

Artifacts diagnostic of the Caddoan period (post-A.D. 800) seem to predominate at these sites. The results of our excavations at Thomas (41DT80) indicated that the major period of occupation and midden accumulation there was between ca. A.D. 950-1200 (see Chapter 6). Because of their location near the river and the presumed threat of flooding, year-round occupation of these sites is thought unlikely. Seasonal occupation during the summer and/or fall seems more probable.

While a few of the small, low-density sites located on terrace and upland landforms within the survey area had been recorded previously (e.g., 41DT71, 41DT83, and

41HP104), the number of these sites was increased substantially by the 1987 survey. Overall, this type of site had low research potential when compared to the kinds of sites discussed above. In general, they did not contain midden deposits, and faunal remains were not preserved. However, since midden sites have lost bone, it is apparent that sites dating more than 2000 years have potentially fewer or no bone deposits.

What drew our interest to the sites selected for data recovery was the possibility that some of them might represent temporally restricted occupations that contained unmixed, single component assemblages. The documentation and chronological placement of single component sites had not been realized during the earlier investigations, and this was considered to be an important research goal.

In certain instances, the documentation of these small, low density sites has helped to provide a more complete picture of Cooper Lake prehistory. For example, a group of eight sites located on the terraces north of Doctors Creek (Figure 10-1) cumulatively provided evidence of sporadic occupation from perhaps the late Paleo-Indian through the Late Caddoan periods. While artifacts diagnostic of the time periods earlier than the Late Archaic were relatively rare, their presence is worth noting here. Very little is known about the Paleo-Indian though Middle Archaic occupation at Cooper Lake, as only limited numbers of these older materials have been recovered during the previous investigations (Bousman et al. 1988:34).

The proximal portion of an Angostura point from 41DT114 (Figure 10-2a) was the oldest diagnostic artifact found during the survey. Although Prewitt (1981:77) considers this type diagnostic of the Early Archaic, Circleville phase in Central Texas, it is similar stylistically to other late Paleo-Indian point types. The broad, side-notched dart point from 41DT113 (Figure 10-2b) and the Wells point from 41DT127 (Figure 10-2c) may represent Early or Middle Archaic period forms. Site 41DT127, in particular, yielded several dart points that might date to the Middle or Late Archaic period. Illustrated here are a large, straight-stem specimen (Figure 10-2d) and an example of the Yarbrough type (Figure 10-2e) from this site. Another Yarbrough point was recovered from 41DT115, which is located just south of Doctors Creek and about one kilometer downstream from 41DT127. Taken together these sites along Doctors Creek yielded most of the Archaic period diagnostics recovered during the 1987 survey.

Another interesting cluster of six small, low density sites was recorded in association with an area of Annona loam soils extending south from Hurricane Hill (Figure 10-1). Gary dart points and ceramic sherds were the most

common diagnostic artifacts recovered from these sites. Further excavations at three of them (41HP136, 41HP137, and 41HP138) did, however, yield lesser numbers of arrow points. The primary occupation of these sites may have been restricted to the Early Ceramic period (ca. 200 B.C.-A.D. 800). The sites themselves may represent ancillary camps associated with a more intensively occupied Early Ceramic period habitation site located on Hurricane Hill (41HP106). As such, they are useful for investigating a more complete range of settlement behavior during this important period of cultural development at Cooper Lake.

Sites buried within the alluvial sediments of the Holocene floodplain represent one variety of site that was overlooked consistently in the earlier surveys at Cooper Lake. While we were unable to identify any previously unrecorded, *in situ* archaeological sites in these contexts, their presence in the Cooper Basin has been documented (Bousman, Collins, and Pertulla 1988; Pertulla 1987). Sites of this type could provide the best opportunity for identifying single component assemblages in good stratigraphic contexts. They also could provide more adequate dating for reconstructing the late Pleistocene and Holocene depositional history of the Sulphur River Basin. For these reasons, the discovery of buried sites in these contexts is probably the most important objective for additional survey work at Cooper Lake.

INTENSIVE EXCAVATIONS

The intensive data recovery phase excavations were conducted at four prehistoric sites (41DT80, 41DT124, 41HP78, and 41HP137). These sites were selected from a total of 45 available prehistoric sites based on the results of the survey and testing phases of the project. The most extensive data recovery efforts were recommended for three of these sites (41DT80, 41DT124, and 41HP78) because they were thought to have the best potential for addressing the series of research problems outlined in our preliminary research design. Apart from having demonstrated excellent contextual integrity, these three sites had been shown to contain information related to (1) subsistence practices, and (2) site structure and community patterning.

Less extensive excavations were conducted at site 41HP137. This site was selected for additional work after evaluating the results of expanded test excavations at five possible single component sites. Although none of these five sites contained faunal remains, the documentation of discrete, temporally restricted occupations was considered to be an important research goal. The testing indicated that only 41HP137 contained substantial amounts of charcoal and carbonized nutshell. The potential of this

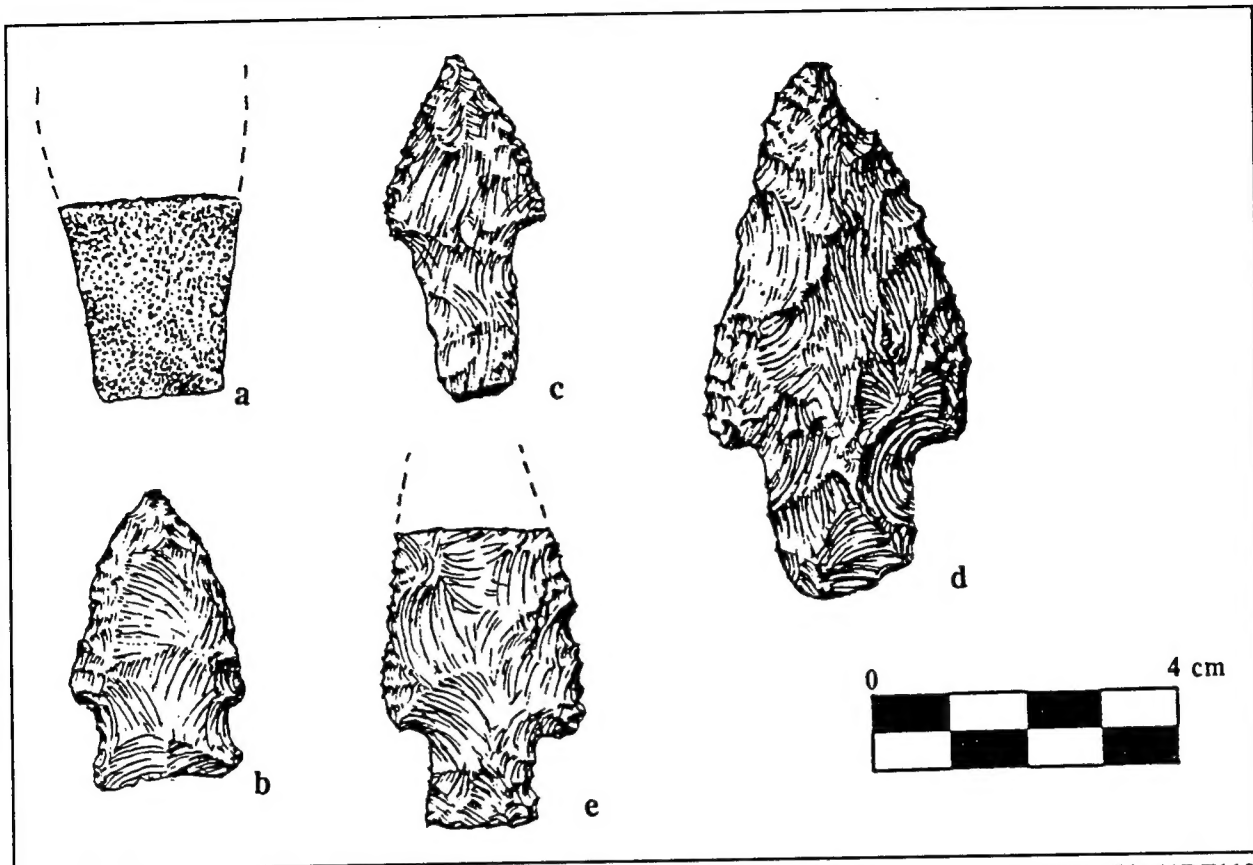


Figure 10-2. Examples of late Paleo-Indian and Archaic dart points: (a) 41DT114, Angostura; (b) 41DT113, Unidentified; (c) 41DT127, Wells; (d) 41DT127, Unidentified; and (e) 41DT127, Yarbrough.

material for providing subsistence information and radiocarbon dates was the primary reason for this site's selection. Because of its small size the level of effort required to investigate 41HP137 was much less than what was needed at the other three excavated sites.

The amount of fieldwork implemented for the Lawson site (41HP78) had to be evaluated against NTSU's and SMU's previous collections, recommendations, and assessment of site stratigraphy. This site was added to the list of sites at which intensive data recovery was carried out under Delivery Order Number 4, but without additional funding. The work effort was readjusted in order to accommodate the Lawson site, but excavations by necessity were rather limited in certain areas of the site. Only three radiocarbon dates (two from the house and one feature) have been run for Lawson, although additional samples are available. Most flotation samples from this site have not been processed and have been curated for future consideration. Our interpretations of this site indicate that the nonaggrading landform and mixture of occupations reduces the archaeological data recovery potential.

In combination, the four excavated sites have yielded important information concerning prehistoric human adaptations at Cooper Lake during the Early Ceramic and Early Caddoan I periods (ca. 200 B.C.-A.D. 1200). The data collected from these sites have been tabulated, but our results must be presented at a relatively descriptive level until all sites and assemblages (i.e., SMU's subsequent research under Delivery Orders 6 and 7, and NTSU's Hurricane Hill report) have been identified and evaluated. Although these results will be summarized to the extent possible, their synthesis and any final conclusions cannot be presented here. The integration of these results with those of previous investigations at Cooper Lake, and those of ongoing studies, will be reserved for a future synthetic report.

A very few diagnostic artifacts indicate relatively limited Archaic period activity at the Lawson (41HP78) and Doctors Creek (41DT124) sites. The primary occupations at the four excavated sites cumulatively span the Early Ceramic (200 B.C.-A.D. 800) and Early Caddoan I (A.D. 800-1200) periods (Figure 10-3). There is also some evidence of a minor Late Caddoan period

component at Thomas, and possibly at the Doctors Creek site as well. At this stage of our research, this summary of excavation results might best be focused on their contributions to our understanding of Early Ceramic and Early Caddoan period occupation at Cooper Lake.

The time period referred to as the Early Ceramic has not been addressed adequately, even though components had been identified since the earliest excavations at Cooper Lake (Johnson 1962:267-268). Several radiocarbon dates from Cooper Lake sites fell within this time span (Doehner and Larson 1978:157), but these components were not discussed specifically in the SMU reports. More recent discussions by Bousman, Collins, and Perttula (1988:30) and Perttula (1987:7-32) have stressed the importance of this period for understanding later Caddoan developments. Although the data available from the 1987 excavations are rather limited, they can provide some initial insights into Early Ceramic period adaptations.

Significant components dating to this time period were encountered at the Lawson site and at 41HP137. While the term Early Ceramic has been applied to this period, our present evidence does little to establish the nature of the earliest ceramic wares or the precise timing of their introduction. A small collection of grog tempered sherds were found at 41HP137, but they do not resemble the thick, Williams Plain wares that have been hypothesized as diagnostic of this period. The dating of these 41HP137 ceramics is questionable, since none were recovered from the two dated features. Both early and late occupations during this period are indicated by the radiocarbon dates HP(Figure 10-3), either of which may have used ceramics. However, in all likelihood, these sherds probably are attributable to a much later, ephemeral occupation during the Caddoan period. A relatively early determination for the introduction of arrow points is indicated by the association in Feature 1 of a Scallorn-like specimen with carbonized nutshell dated to A.D. 595 \pm 50 (SMU 1966, corrected).

The Early Ceramic period components at Lawson and 41HP137 seem to represent very different settlement types. Lawson is a spatially extensive and relatively high density site on a large remnant (i.e., nonaggrading) knoll adjacent to the South Sulphur River. Site 41HP137 is a small, relatively low density campsite on the nonaggrading upland edge and associated with a minor tributary drainage. The occupation at Lawson is best represented on Rise I where at least one burial and a hearth have been dated to this period. Many of the cultural features on the eastern end of this rise are thought to date to this component on the basis of their artifact content, but none have been radiocarbon dated as yet. Although much of the Rise I artifact accumulation is thought to date to the

Early Ceramic period, the densest areas of midden there and on Rise II most likely date to the Early Caddoan component.

A much less intensive occupation of 41HP137 is suggested by its small size, lack of midden development, and the ephemeral nature of its features. This was one of a group of small sites located along minor tributary drainages to the south of Hurricane Hill. As at Lawson, the Early Ceramic component at the Hurricane Hill site (41HP106) appears to represent much more intensive habitation. Sites like 41HP137 probably were ancillary camps associated in some way with the more permanent occupations at sites like Lawson and Hurricane Hill.

The only subsistence data definitely assignable to the Early Ceramic period are the macrobotanical remains from 41HP137. Remains of hickory nut, acorn, *Psoralea* (?) tuber, and squash were identified at 41HP137. The squash remains are the most interesting, and were most abundant in Feature 2 which yielded a date of 130 \pm 50 B.C. (SMU 1917, corrected). These represent the earliest dated remains of a domesticated plant reported from a site in northeast Texas. Although limited in quantity, this macrobotanical assemblage provides an initial indication of pre-Caddoan subsistence at Cooper Lake. For the most part, dated feature contexts represent filling of features and, in most cases, cannot be totally related to Early Ceramic occupations.

The only other potential for Early Ceramic subsistence remains appeared to be the Lawson site. However, the mixed components within the faunal middens reduces the importance of this site to yield subsistence evidence attributable to specific components. As suggested by Ferring (see Appendix E), the osteological remains from the Early Ceramic and Archaic period should be disproportionately lacking due to the chemical dissolution process.

The Early Caddoan components at the Lawson, Doctors Creek, and Thomas sites provide somewhat more complete data. Primary components at all three sites appear to be restricted to a portion of the Early Caddoan I (Figure 10-3). The geographic location of Lawson was mentioned above. Thomas was one of a group of small sites located on low knolls adjacent to the South Sulphur River. This site appears to represent an actual "midden mound" in that the height of the knoll has been enhanced by the accumulation of midden debris. The Doctors Creek site is located on a terrace edge adjacent to Doctors Creek, ca. 4 km (2.5 mi) upstream from its confluence with the South Sulphur River. Taken together, these sites represent a variety of settlement locations related to the Early Caddoan occupation of the Cooper Lake area.

The duration and seasonality of these occupations are still open to question. However, their relative permanence

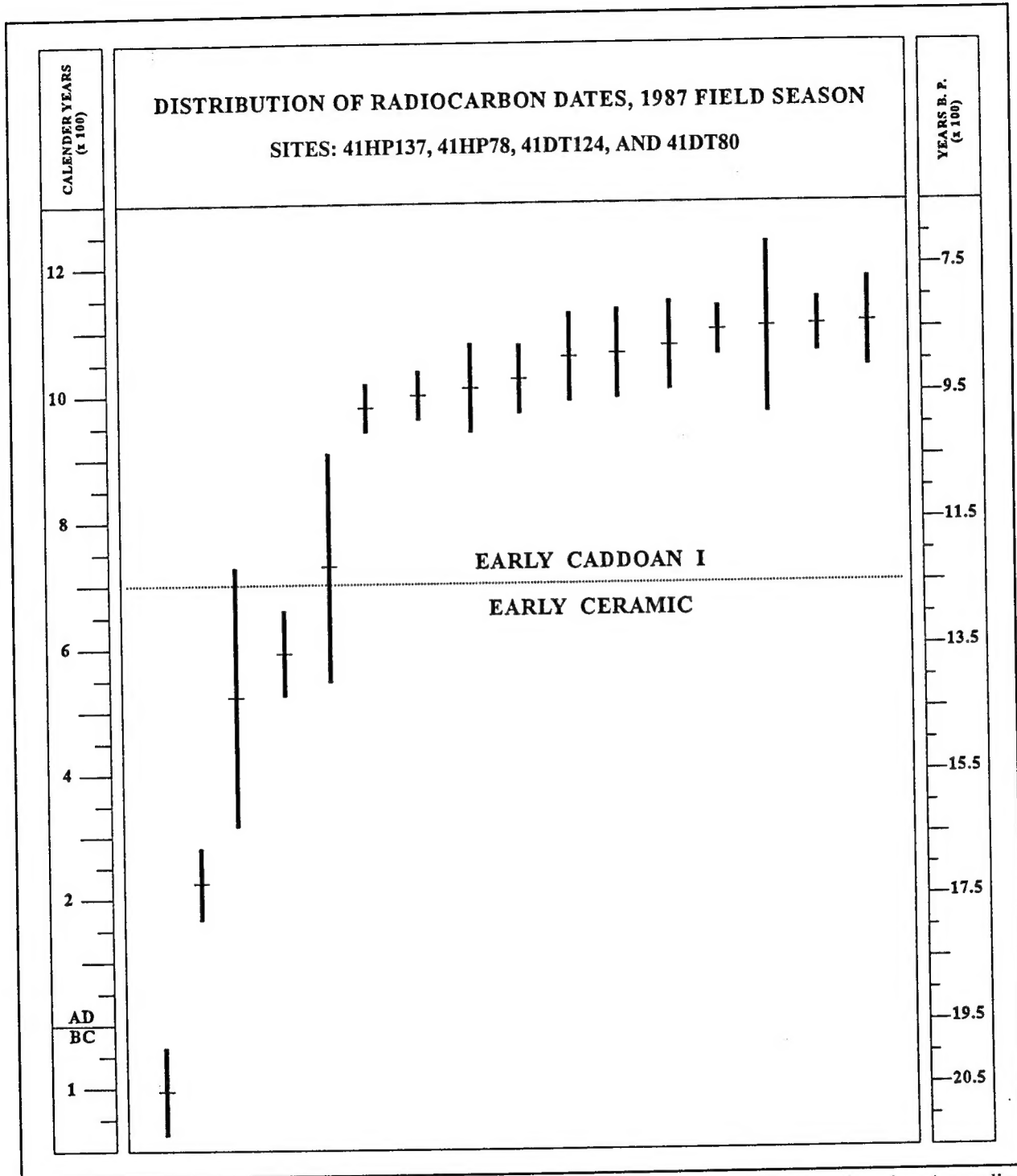


Figure 10-3. Distribution of 19 radiocarbon dates (one standard deviation) from the 1987 excavations (see Appendix I for a complete listing of all Cooper dates, and detailed discussion of 1987 dates). Note: Radiocarbon dates from 41DT118 do not fall on the graph. These dates are: 1222 ± 70 B.C. (SMU 1970) and 1050 ± 100 B.C. (SMU 1883).

is evidenced by the well developed middens, numerous features (e.g., subterranean pits possibly used for storage),

and human burials at each of these sites. The possibility of seasonal occupation is thought most likely for the Thomas

site. The proximity of this site to the South Sulphur River and the presumed threat of flooding make it difficult to believe that it ever was occupied on a year-round basis. However, modern flooding may be much more serious than during the Prehistoric period since the native prairies had greater water-holding capacity. Postholes suggestive of structures were present at all three sites. The best structural evidence was the partial posthole pattern associated spatially with large quantities of clay daub on Rise I at Lawson.

Identified faunal species suggest a heavy reliance on deer along with substantial amounts of turtle, rabbit, and turkey. Freshwater mussel shells were also relatively common at these sites.

The macrobotanical remains were dominated by wild plant species with hickory nutshell being the most

common (see Appendix G). Other commonly identified wild species included acorn, tuber (*Psoralea?*), and pecan. Cultigens were represented by the remains of maize and squash. Maize cupule and kernel fragments were present in very small quantities and only at Doctors Creek and Thomas. This scarcity of maize might be seen as evidence for a lack of dependence on agriculture during the Early Caddoan I period. However, a significant amount of *Curcubitaceae* rind was recovered from all three sites. The rind thickness does not appear to represent any local species of wild gourd. Microscopic examination of its cell structure suggested its identification as domesticated squash (*Cucurbita* sp.). The prevalence of squash remains from Early Caddoan I contexts indicates that it and possibly maize were being cultivated locally during this period.